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PA. SUSQUEHANNA RIVER BASIN COMMISSION

WATER QUALITY OF INTERSTATE STREAMS IN THE SUSQUEHANNA RIVER BASIN

MONITORING REPORT NO. 2

WATER YEAR 1988

(OCTOBER 1987 - SEPTEMBER 1988)

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WATER QUALITY OF INTERSTATE STREAMS IN THE SUSQUEHANNA RIVER BASIN MONITORING REPORT #2 WATER YEAR 1988 (OCTOBER 1987 – SEPTEMBER 1988)

SUSQUEHANNA RIVER BASIN COMMISSION

RESOURCE QUALITY MANAGEMENT & PROTECTION DIVISION

MAY 1989

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McMorran, Carl P.
Water quality of interstate
streams in the Susquehanna

The Susquehanna River Basin Commission was created as an independent agency by a Federal-Interstate Compact* among the States of Maryland, New York, Commonwealth of Pennsylvania and the Federal Government. In creating the Commission, the Congress and State Legislatures formally recognized the water resources of the Susquehanna River basin as a regional asset vested with local, State and National interests for which all the parties share responsibility. As the single Federal-Interstate water resources agency with basinwide authority, the Commission's goal is to effect coordinated planning, conservation, management, utilization, development and control of basin water resources among the government and private sectors.

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* Statutory Citations: Federal - Pub. L. 91-575, 84 Stat. 1509 (December, 1970); Maryland - Natural Resources §8-301 (Michie 1974); New York - ECL §21-1301 (McKinney 1973); and Pennsylvania - 32 P.S. 820.1 (Supp. 1976).

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WATER QUALITY OF INTERSTATE STREAMS IN THE SUSQUEHANNA RIVER BASIN

MONITORING REPORT #2

WATER YEAR 1988

(October 1987 - September 1988)

Prepared by

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Publication #122

May 1989

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ABSTRACT

A twelve station water quality monitoring network was conducted on interstate streams in the Susquehanna River Basin in November 1987, and February, May and August 1988. This was a continuation of a program begun in 1986. Twenty-four stations on other interstate streams were sampled in July and August 1988. Stream quality was also assessed by sampling benthic macroinvertebrates at each station in July and August 1988. This program contributes to a database that is used 1) to assess compliance with water quality standards; 2) to assess impacts on water quality; 3) to characterize ambient and seasonal stream quality; and 4) for future trend assessment.

Most interstate streams have good water quality. Only 46 out of 2,804 observations exceeded water quality standards. Iron and manganese most commonly exceeded standards. Fecal coliform counts were high in the Susquehanna River, Chemung River, Conowingo Creek, Octoraro Creek and Deer Creek. Scott Creek is severely degraded by domestic sewage and other pollutants from unknown sources in Delta, Pennsylvania and/or Cardiff, Maryland.

INTRODUCTION

The Susquehanna River Basin Commission (SRBC) reviews projects and policies for potential impacts on interstate water resources in the Susquehanna River Basin. Current water quality data are needed to conduct these reviews. Monitoring programs conducted by Maryland, Pennsylvania and New York do not cover all of the interstate streams and do not produce comparable data. This led SRBC to establish a monitoring program to collect data needed to assess potential impacts on the water quality of interstate streams. This ongoing program is funded annually through an Environmental Protection Agency 106 grant.

The monitoring program includes quarterly water quality sampling (Fall, Winter, Spring and Summer) and annual benthic macroinvertebrate collections (Summer) at twelve stations on nine interstate streams. Summer collections of water and biological samples are made from the remaining interstate streams. Benthic macroinvertebrates provide a sample of a stream's biological health and serve as indicators of water quality. Chemical data are used to assess compliance with state water quality standards; to provide for the characterization of stream quality and seasonal variations; and to build a database for the future assessment of water quality trends.

Sample collection began in April 1986. Results of the first 18 months of the program were reported by McMorran (1988). This report covers results from October 1987 to September 1988.

BASIN GEOGRAPHY

The Susquehanna River Basin is the largest river basin on the Atlantic Coast of the United States; 27,580 square miles (Figure 1). The Susquehanna River originates at the outlet of Otsego Lake at Cooperstown, New York and flows 450 miles through New York, Pennsylvania and Maryland to the Chesapeake Bay at Havre de Grace, Maryland. Twenty-eight perennial streams cross the New York - Pennsylvania border and twelve perennial streams cross the Maryland - Pennsylvania border (Table 1 and Figures 2-6).

METHODS

Program Changes. From April 1986 to September 1988, samples were collected every month at stations of special interest. Other streams were sampled on a rotating schedule of one stream a month during summer months. Biological samples were collected in summer. In November 1987, the program was refined to improve the quality of data collected. Laboratory analyses were added for the dissolved fractions of most water quality parameters. These parameters, along with the addition of total and dissolved solids, provide information on how storm runoff and sediment loads affect water chemistry. Other parameters were added to provide more information on nutrients.

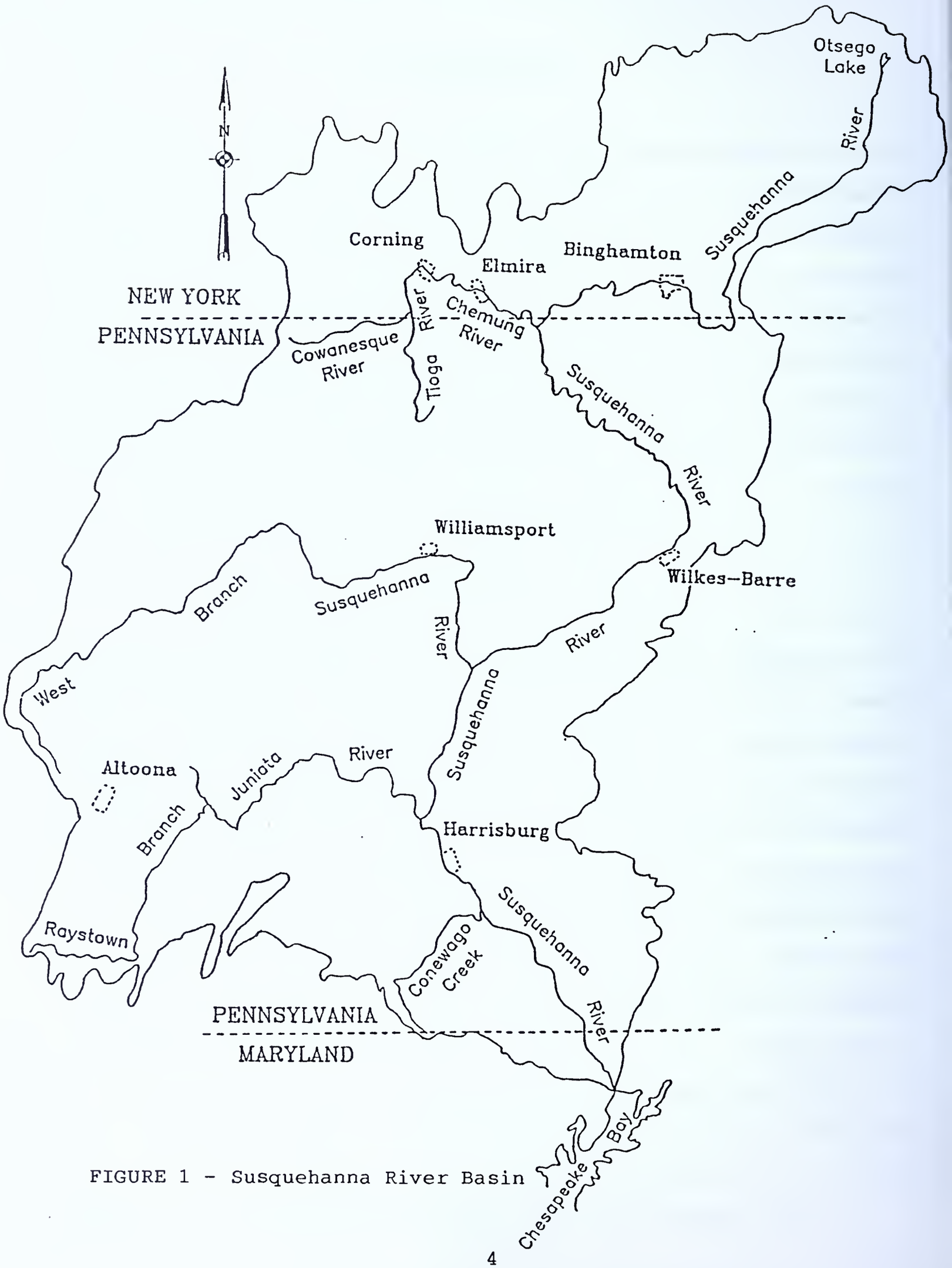

FIGURE 1 - Susquehanna River Basin

TABLE 1

INTERSTATE STREAMS IN THE SUSQUEHANNA RIVER BASIN

Between New York and Pennsylvania

Apalachin Creek
Bentley Creek
Bill Hess Creek
Briggs Hollow Run
Bulkley Brook
Camp Brook
Cascade Creek
Cayuta Creek
Chemung River
Choconut Creek
Cowanesque River
Denton Creek
Holden Creek
Little Snake Creek
Little Wappasening Creek
North Fork Cowanesque River
Parks Creek
Russell Run
Sackett Creek
Seeley Creek
Snake Creek
South Creek
Susquehanna River
Tioga River
Troups Creek
Trowbridge Creek
Wappasening Creek
White Branch Cowanesque River

Between Pennsylvania and Maryland

Big Branch Deer Creek
Broad Creek
Conowingo Creek
Deer Creek
Ebaughs Creek
Falling Branch Deer Creek
Long Arm Creek
Muddy Creek
Octoraro Creek
Scott Creek
South Branch Conewago Creek
Susquehanna River

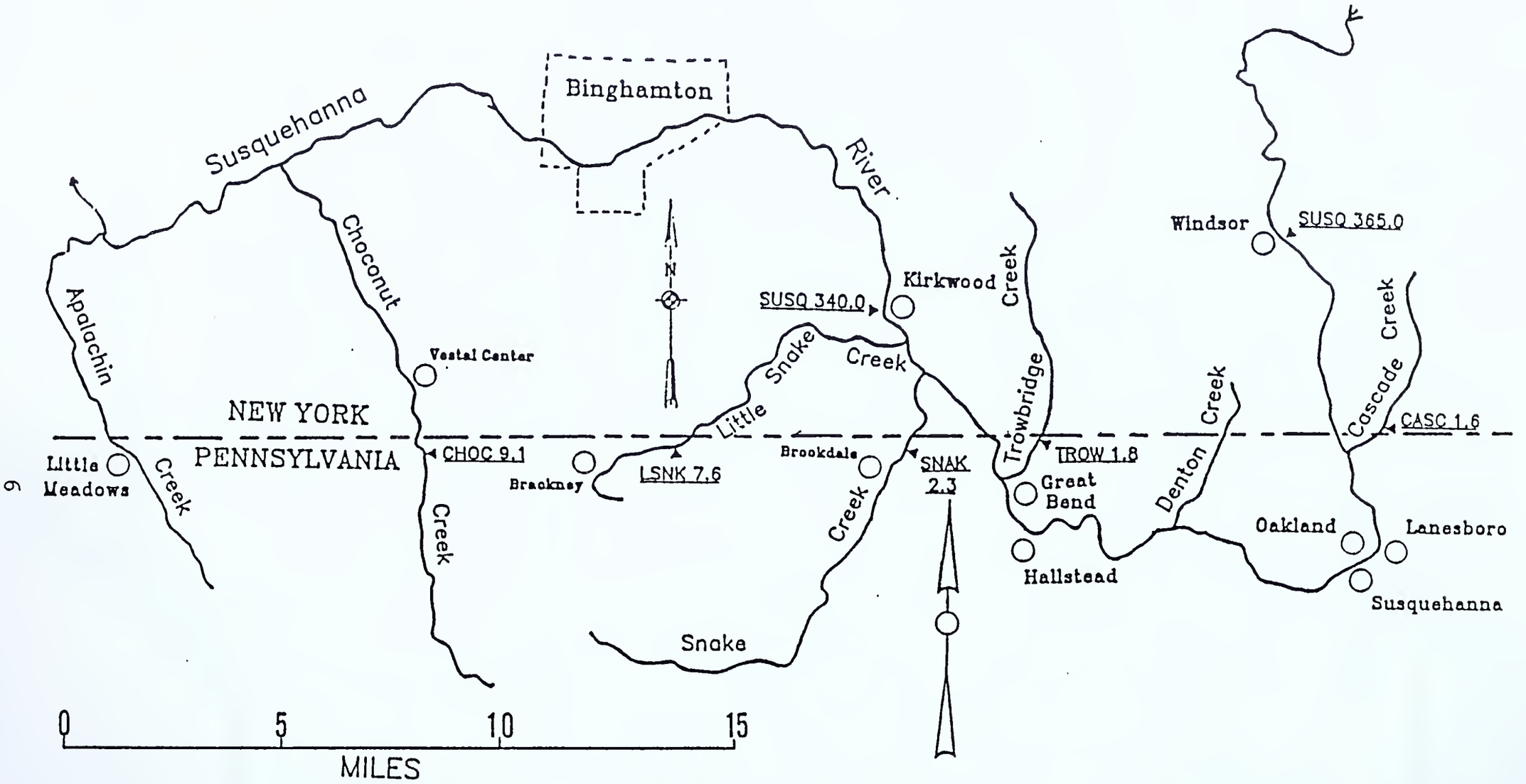

FIGURE 2 - Interstate Streams Crossing the New York-Pennsylvania Border Between Windsor, New York and Apalachin, New York

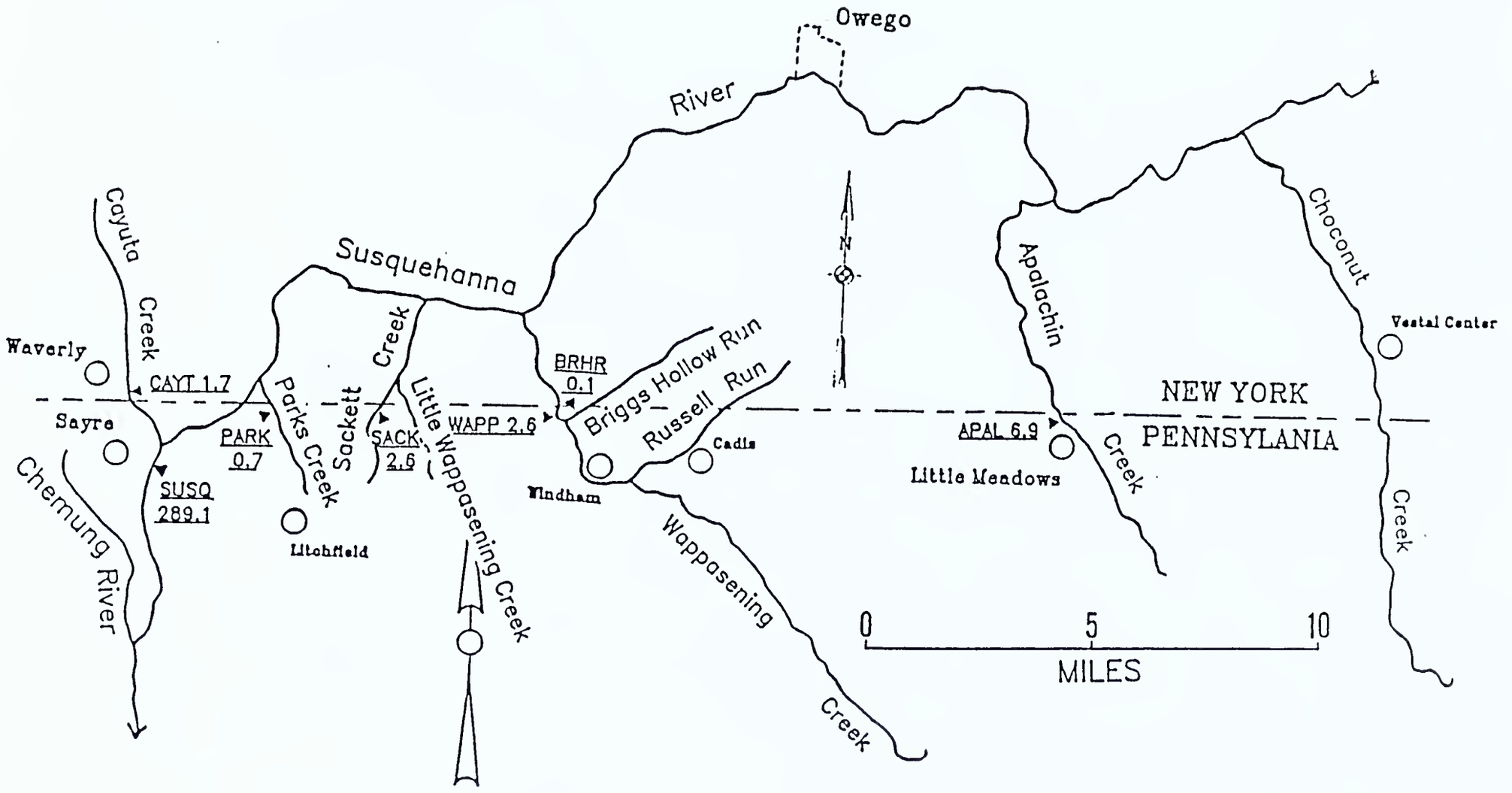

FIGURE 3 - Interstate Streams Crossing the New York-Pennsylvania Border Between Vestal, New York and Sayre, Pennsylvania

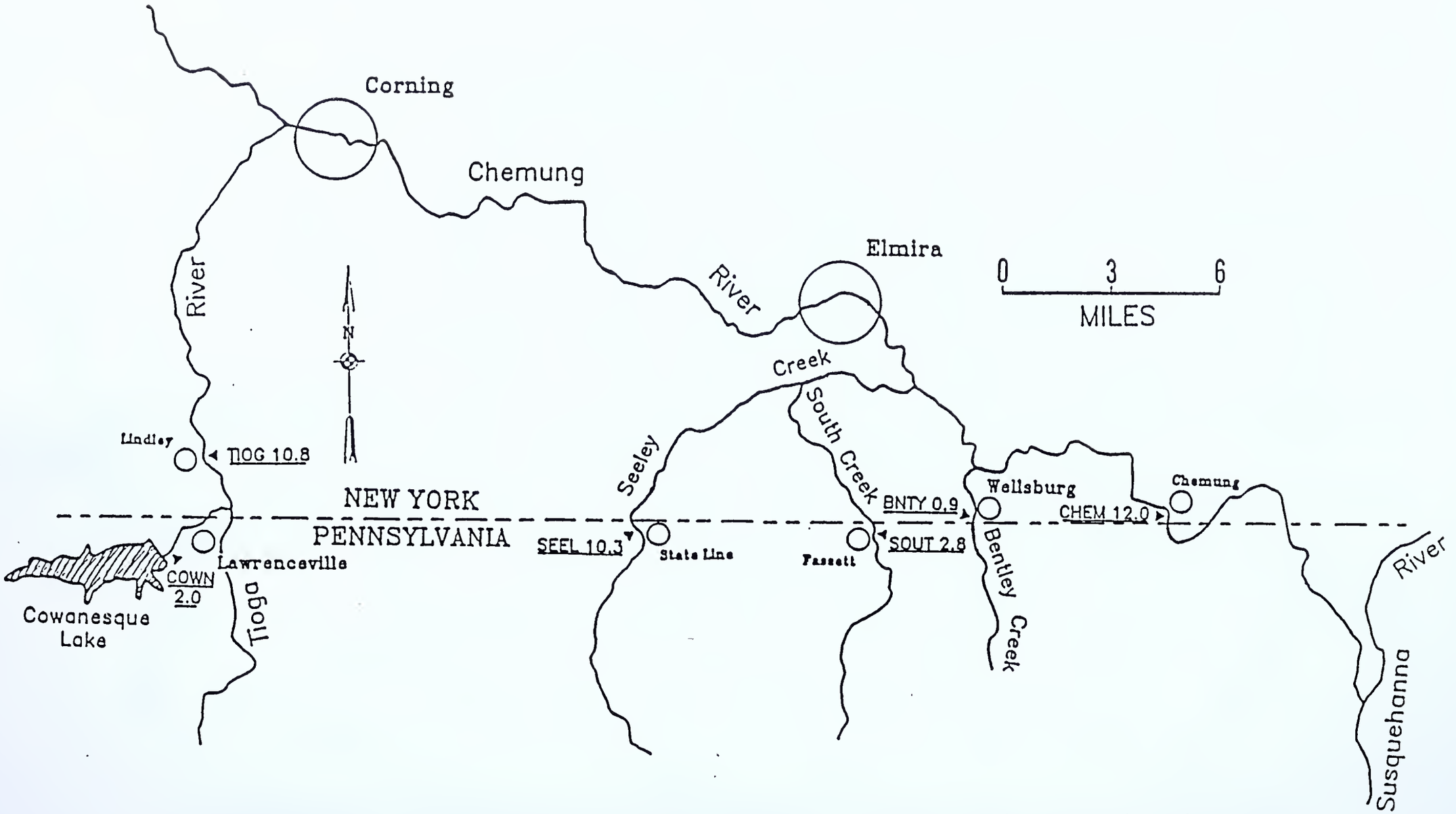

FIGURE 4 - Interstate Streams Crossing the New York-Pennsylvania Border Between Sayre, Pennsylvania and Lawrenceville, Pennsylvania

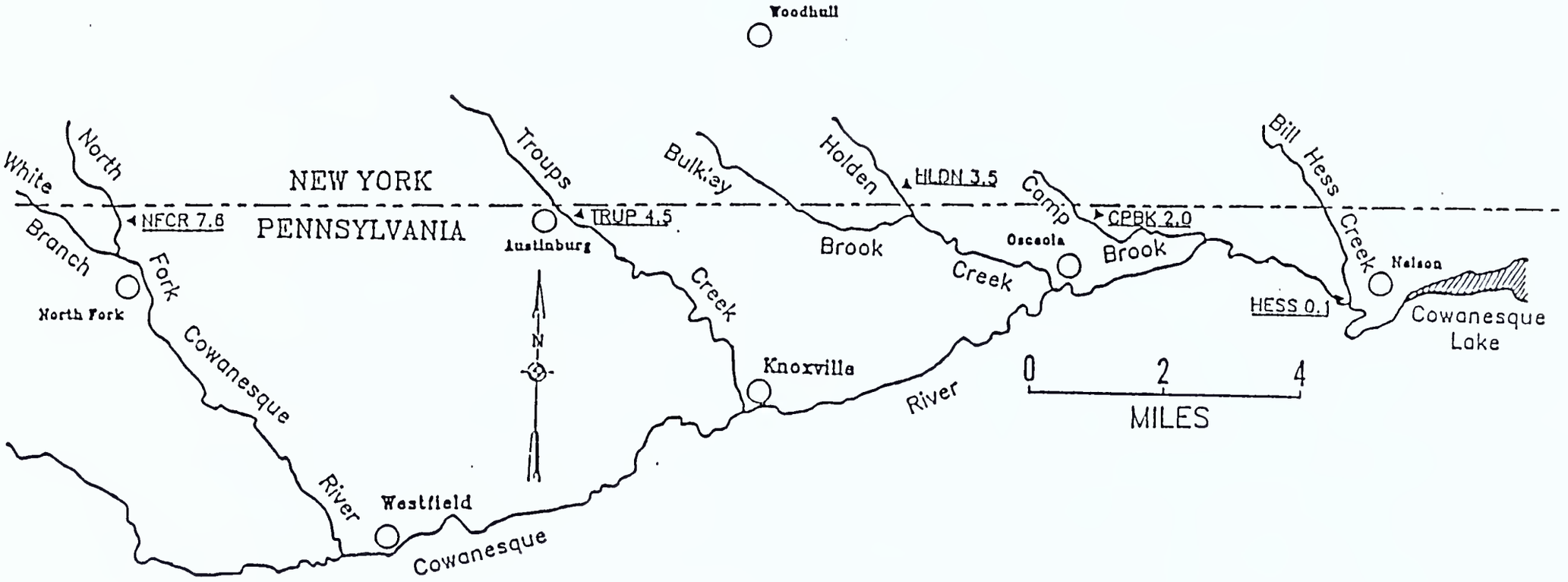

FIGURE 5 - Interstate Streams Crossing the New York-Pennsylvania Border Between Nelson, Pennsylvania and North Fork, Pennsylvania

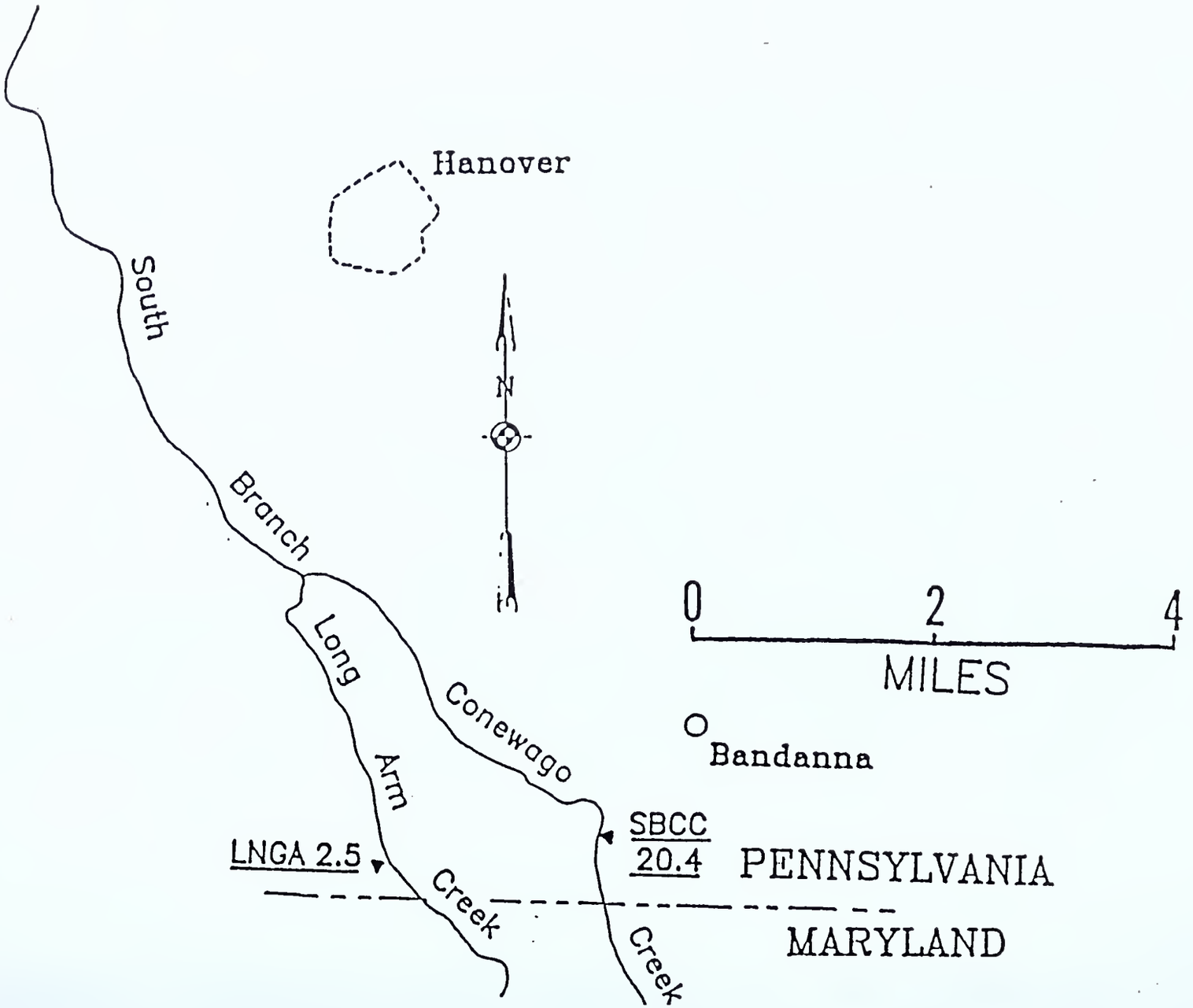

FIGURE 6 - Interstate Streams Crossing the Maryland-Pennsylvania Border Near Hanover, Pennsylvania

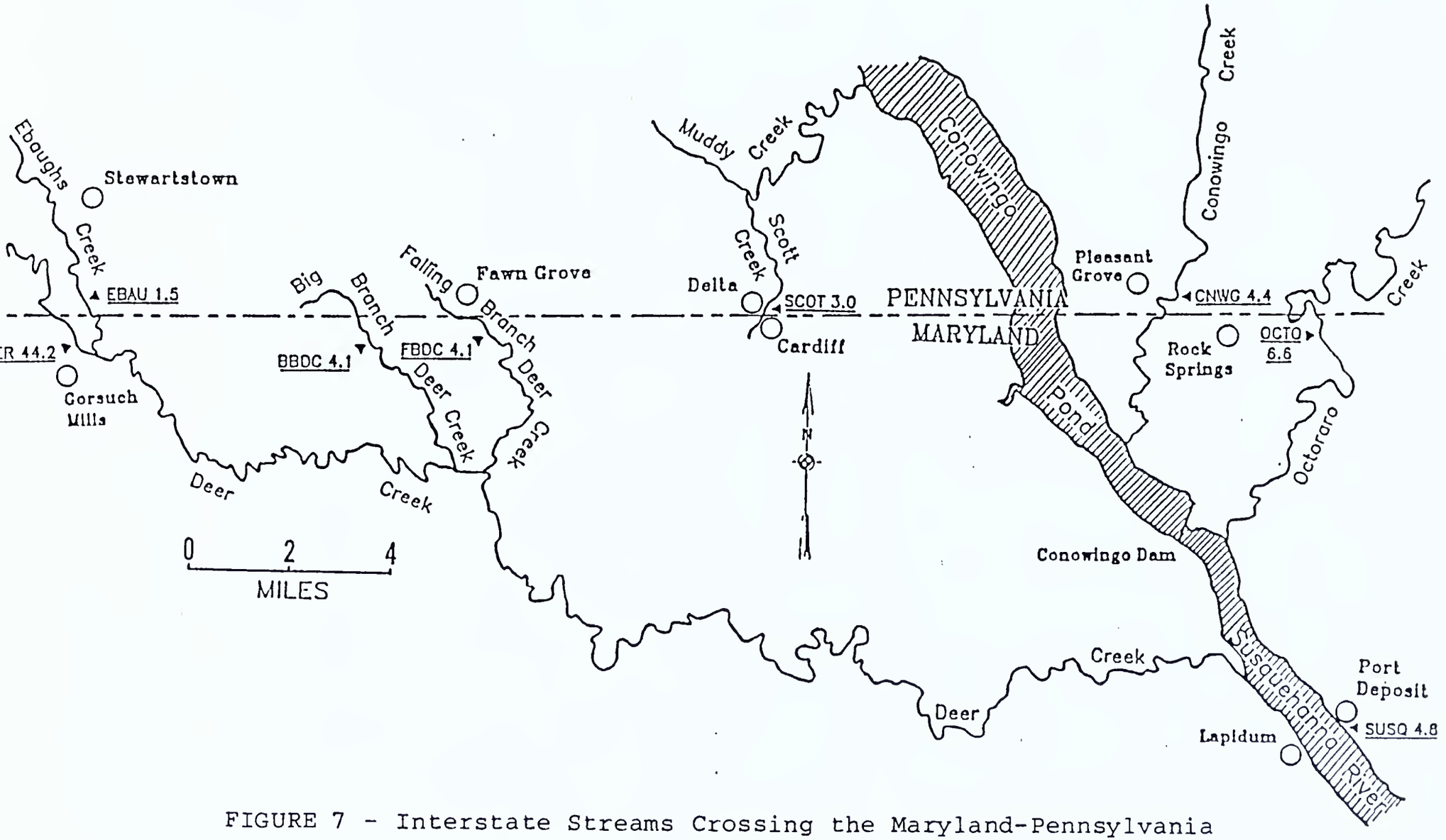

FIGURE 7 - Interstate Streams Crossing the Maryland-Pennsylvania Border Between Gorsuch Mills, Maryland and Rock Springs, Maryland

The frequency of sampling interstate streams was changed so that all interstate streams were sampled at least once a year. This change, plus the addition of more parameters, would have increased the number of laboratory analyses. To stay within budgetary limits, stations that were sampled every month were reduced to a quarterly schedule. This still provides an adequate data base for project review and water quality characterization tasks, but will increase the time needed to gather data for trend assessments.

Locations of sampling stations are shown in Figures 2 through 6. The stations are divided into two groups. Stream of special interest comprise the Quarterly Group and are sampled every three months. These streams were sampled monthly up to September 1987. The remaining streams comprise the Annual Group and are sampled once a year.

Streams were selected for the Quarterly Group based on known or suspected water quality problems or presence of effluent discharges in the drainage area. The rationale for each Quarterly Group station is presented in Table 2. Two stations that were originally sampled monthly were moved to the Annual Group. Snake Creek and Seeley Creek were sampled monthly because earlier studies showed evidence of water quality problems. Monitoring results did not show any serious violations of water quality standards and it was concluded that annual samples would adequately characterize water quality in these streams.

TABLE 2

RATIONALE FOR QUARTERLY GROUP

STATION	STREAM NAME	RATIONALE
SUSQ 4.8	Susquehanna River	Downstream bracket of hydro-electic dams near stateline.
SUSQ 44.5	Susquehanna River	Upstream bracket of hydro-electric dams near stateline.
SUSQ 289.1	Susquehanna River	Intensive urban development and numerous discharges to river between Binghamton and Owego.
SUSQ 340.0	Susquehanna River	Large drainage area (2,232 mi^2), historical degradation due to sewage from Lanesboro, Susquehanna, Oakland, Great Bend and Hallstead.
SUSQ 365.0	Susquehanna River	Large drainage area (1,882 mi^2), municipal discharges from Cooperstown, Sidney, Bainbridge and Afton.
DEER 44.5	Deer Creek	Past degradation near Stewartstown. Non point runoff to the Chesapeake Bay.
EBAU 1.5	Ebaughs Creek	Municipal discharge from Stewartstown. Non point runoff to the Chesapeake.
OCTO 6.6	Octoraro Creek	High nutrient and bacteria concentrations from agricultural practices. Water quality impacts from Octoraro Lake.
CNWG 4.4	Conowingo Creek	High nutrient and bacteria concentrations from agricultural practices.
CHEM 12.0	Chemung River	Municipal discharges from Elmira.
TIOG 10.8	Tioga River	Degradation from acid mine drainage sources. Impacts from water storage reservoirs.
CAYT 1.7	Cayuta Creek	Municipal discharge from Waverly.

Stream Discharge. Stream discharge was measured at all stations. Stations on the Susquehanna River at Windsor, Kirkwood, Sayre, Columbia, and Port Deposit; the Chemung River at Chemung; the Cowanesque River at Lawrenceville; and the Tioga River at Lindley are located near United States Geological Survey (USGS) stream gages. Stream discharges are reported from gage records as mean daily discharges in cubic feet per second (cfs). Instantaneous discharge was measured at the remaining stations at the time of sampling. In some instances, no discharge measurements were made because high stream flows made discharge measurements impossible.

Water Samples. The chemical, physical and bacteriological parameters studied are listed in Table 3. Water samples were collected using depth integrating samplers. At each station, eight samples were collected by wading or from bridges using hand line samplers. These samples were combined in a churn splitter and churned to produce a composite sample for laboratory analysis.

Two liters of water were collected at each station for laboratory analysis. The samples consisted of two 500 ml bottles for nutrients (one filtered sample and one raw water sample), and two 500 ml bottles for metals analysis (also one filtered and one raw). Samples were filtered through a cellulose nitrate filter with a 0.45 um pore size. Filters were changed at each station. All bottles were rinsed with sample water prior to filling and

samples for metals analyses were fixed with nitric acid. The samples were chilled on ice and shipped to the Pennsylvania Department of Environmental Resources (PaDER), Bureau of Laboratories in Harrisburg, Pennsylvania.

A 120 ml sample was collected for bacteriological analyses for fecal coliforms and fecal streptococci. Bacteriological samples were discontinued after May 1988. The samples could not be delivered to the laboratory within the maximum holding time necessary for accurate results.

Field Chemistry. Field tests were performed on churned water samples at the time of collection. Temperature and dissolved oxygen were measured using a YSI dissolved oxygen meter. Conductivity was measured using a Beckman Solu-bridge meter. pH was measured using an Orion Model 399A meter. Alkalinity was measured by titrating a known volume of water to pH 4.5 with 0.2N H_2SO_4. Acidity was measured by titrating a known volume of sample water to pH 8.3 with 0.2N NaOH. Total free chlorine was measured using a LaMotte 4497-DR Model PC7-DR chlorine test kit.

Macroinvertebrate Sampling. Benthic macroinvertebrates were sampled from each station between July 25 and August 11, 1988. Macroinvertebrates are defined as aquatic insects and other invertebrates that are too large to pass through a #30 sieve. Qualitative sampling (presence of macroinvertebrate taxa) was

done using a kick screen. A riffle area was raked and the dislodged macroinvertebrates were collected in a seine stretched across the current. Macroinvertebrate specimens were collected and preserved in dilute formalin solution for later identification. This procedure was repeated until no new taxa were collected.

Quantitative data (number of macroinvertebrates per unit area) were collected with a Surber sampler. This device is a one foot square frame with a #30 mesh net. The sampler was placed on the substrate in a shallow riffle and the area enclosed by the frame was scrubbed with a brush. The current carried the dislodged macroinvertebrates into the net. Rocks within the frame were cleaned with a scrub brush to dislodge clinging or attached macroinvertebrates. The macroinvertebrates in the net were removed, placed in a container and preserved with dilute formalin solution. Three Surber samples were collected at each station. The preserved specimens were stored and identified to generic level at a later date.

TABLE 3

MONITORED PARAMETERS

	STORET code
Physical	
Discharge	00060
Temperature	00010
Chemical	
Field Analyses	
Conductivity	00095
Dissolved Oxygen	00300
pH	00400
Alkalinity	00410
Acidity	00435
Free chlorine	50064
Laboratory Analyses	
Biochemical Oxygen Demand	00310
Solids - Dissolved	00515
Total	00500
Ammonia as Nitrogen - Dissolved	00608
Total	00610
Nitrite as Nitrogen - Dissolved	00613
Total	00615
Nitrate as Nitrogen - Dissolved	00618
Total	00620
Kjeldahl Nitrogen - Dissolved	00623
Total	00625
Phosphorus - Dissolved	00666
Total	00665
Orthophosphate - Dissolved	00671
Total	70507
Organic Carbon - Total	00680
Calcium - Dissolved	00915
Total	00916
Magnesium - Dissolved	00925
Total	00927
Chloride - Dissolved	82295
Total	00940
Sulfate - Dissolved	00946
Total	00945
Iron - Dissolved	01046
Total	01045
Manganese - Dissolved	01056
Total	01055
Aluminum - Dissolved	01106
Total	01105
Bacteriological	
Fecal coliforms	31614
Fecal streptococci	31673

RESULTS

Station summaries are presented in Tables 4 through 39. Also included are station location data. DER STREAM CODE is a stream numbering system used by the Pennsylvania Department of Environmental Resources (DER, 1989). LEVEL refers to a stream hierarchy system also used by DER. LEVEL gives the relative hierarchy of each stream relative to the mouth of the Susquehanna River.

Please note that Bulkley Brook, Denton Creek, Little Wappasening Creek, Russell Run and White Branch Cowanesque River were not sampled in 1988. These streams were dry during the summer sampling period.

Water quality of interstate streams was good. Water quality standards were not met in only 46 of 2,804 observations. Parameters most commonly exceeding standards were fecal coliform and iron.

Fecal coliform densities commonly exceeded the standard established for the summer period when high contact activities such as swimming and fishing occur. However, most of the high concentrations occurred during fall and winter. Excessive concentrations were observed in the Susquehanna River at Columbia (>2600 counts/100 ml), Cayuta Creek (>18,000 counts/100 ml) and Conowingo Creek (>2600 counts/100 ml) during fall and winter. Stream stations having consistently high levels of fecal bacteria

were the Susquehanna River at Sayre, the Chemung River, Conowingo Creek, Octoraro Creek and Deer Creek. These streams should receive further study to identify sources of bacteria and to recommend corrective action.

Total and dissolved iron concentrations exceeded Pennsylvania water quality standards at most stations. High iron concentrations appear to be independent of land uses, the presence or absence of waste water discharges, or other obvious human factors and seem to be characteristic of natural conditions in the Basin.

Scott Creek was polluted by untreated sewage. Dissolved oxygen did not meet standards and biochemical oxygen demand was an order of magnitude greater that other interstate streams. Concentrations of solids, phosphorus, chlorides, organic carbon, iron, magnesium and manganese were also greater than other streams. We recommend moving Scott Creek to the Quarterly Group and that field reconnaissance be conducted during the summer of 1989 to better identify the source of the pollution.

TABLE 4

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SUSQ 4.8 **STREAM:** Susquehanna River

LOCATION: Lapidum/Port Deposit transect, Harford/Cecil Counties, Maryland.

DER STREAM CODE: 6685 **LEVEL:** 2

LATITUDE: 39° 34' 16" **LONGITUDE:** 76° 05' 32"

SOURCE: Otsego Lake, Otsego County, New York

MOUTH: Chesapeake Bay, Cecil/Harford Counties, Maryland

REACH: Pennsylvania state line (river 15.0) to Chesapeake Bay (river mile 0.0).

REACH CLASSIFICATION - MARYLAND: IV

WATER QUALITY DATA - Table 40 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Dissolved iron	02/04/88	390 ug/l	300 ug/l	PA
Total iron	02/04/88	1,510 ug/l	1,500 ug/l	PA

BIOLOGICAL DATA - No sampling conducted.

COMMENTS:

TABLE 5

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SUSQ 44.5 **STREAM:** Susquehanna River

LOCATION: Rt 642 Bridge, Columbia, Lancaster County, Pennsylvania.

DER STREAM CODE: 6685 **LEVEL:** 2

LATITUDE: 40° 03' 16" **LONGITUDE:** 76° 31' 52"

SOURCE: Otsego Lake, Otsego County, New York

MOUTH: Chesapeake Bay, Cecil/Harford Counties, Maryland

REACH: Dauphin County line (river mile 56.2) to Maryland state line (river mile 15.0).

REACH CLASSIFICATION - PENNSYLVANIA: WWF

WATER QUALITY DATA - Table 41 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Dissolved iron	11/04/87	390 ug/l	300 ug/l	PA
"	02/03/88	450 ug/l	300 ug/l	PA
Total iron	02/03/88	2,880 ug/l	1,800 ug/l	PA

BIOLOGICAL DATA - Table 42

NUMBER OF TAXA: 19
ESTIMATED DENSITY: 79 individuals per square foot
DIVERSITY INDEX: 3.64

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Burrowing mayflies	"	Potamanthidae
Riffle beetles	Coleoptera	Elmidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae

COMMENTS:

TABLE 6

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SUSQ 289.1 **STREAM:** Susquehanna River

LOCATION: Lockhart Street Bridge, Athens Township, Bradford County, Pennsylvania.

DER STREAM CODE: 6685 **LEVEL:** 2

LATITUDE: 41° 59' 05" **LONGITUDE:** 76° 30' 05"

SOURCE: Otsego Lake, Otsego County, New York

MOUTH: Chesapeake Bay, Cecil/Harford Counties, Maryland

REACH: New York State line (river mile 291.0) to Chemung River (river mile 284.0).

REACH CLASSIFICATION - NEW YORK: B

PENNSYLVANIA: WWF

WATER QUALITY DATA - Table 43 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Dissolved iron	11/03/87	310 ug/l	300 ug/l	NY, PA

BIOLOGICAL DATA - Table 44

NUMBER OF TAXA: 18
ESTIMATED DENSITY: 11 individuals per square foot
DIVERSITY INDEX: 2.65

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Water pennies	Coleoptera	Psephenidae
Midges	Diptera	Chironomidae

COMMENTS:

TABLE 7

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SUSQ 340.0 **STREAM:** Susquehanna River

LOCATION: Kirkwood, Broome County, New York

DER STREAM CODE: **LEVEL:** 2

LATITUDE: 42° 02' 07" **LONGITUDE:** 75° 44' 33"

SOURCE: Otsego Lake, Otsego County, New York

MOUTH: Chesapeake Bay, Cecil/Harford Counties, Maryland

REACH: Pennsylvani state line (river mile 343.0) to Conklin (river mile 339.0).

REACH CLASSIFICATION - NEW YORK: B

PENNSYLVANIA: WWF

WATER QUALITY DATA - Table 45

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Dissolved iron	02/02/88	430 ug/l	300 ug/l	NY, PA
Total iron	02/02/88	8,500 ug/l	1,500 ug/l	PA
Total manganese	02/02/88	320 ug/l	300 ug/l	NY

BIOLOGICAL DATA - Table 46

NUMBER OF TAXA: 23
ESTIMATED DENSITY: 27 individuals per square foot
DIVERSITY INDEX: 3.36

DOMINANT TAXA	ORDER	FAMILY
Burrowing mayflies	Ephemeroptera	Potamanthidae
Riffle beetles	Coleoptera	Elmidae
Humpless casemaking caddisflies	Trichoptera	Brachycentridae

COMMENTS:

TABLE 8

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SUSQ 365.0 **STREAM:** Susquehanna River

LOCATION: Windsor, Broome County, New York

DER STREAM CODE: 6685 **LEVEL:** 2

LATITUDE: 42° 00' 18" **LONGITUDE:** 75° 38' 14"

SOURCE: Otsego Lake, Otsego County, New York

MOUTH: Chesapeake Bay, Cecil/Harford Counties, Maryland

REACH: Chenango County line (river mile 377.7) to Pennsylvania state line (river mile 357.7).

REACH CLASSIFICATION - NEW YORK: B

PENNSYLVANIA: WWF

WATER QUALITY DATA - Table 47 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Dissolved iron	11/05/87	350 ug/l	300 ug/l	NY, PA
"	02/02/88	380 ug/l	"	"
Total iron	02/02/88	5,270 ug/l	1,500 ug/l	PA

BIOLOGICAL DATA - Table 48

NUMBER OF TAXA: 17
ESTIMATED DENSITY: 19 individuals per square foot
DIVERSITY INDEX: 3.44

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Small minnow mayflies	"	Baetidae
Riffle beetles	Coleoptera	Elmidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae

COMMENTS:

TABLE 9

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: DEER 44.2 **STREAM:** Deer Creek

LOCATION: Harris Mill Road Bridge, Gorsuch Mills, Baltimore County, Maryland.

DER STREAM CODE: 6761 **LEVEL:** 2 23

LATITUDE: 39° 43' 02" **LONGITUDE:** 76° 35' 10"

SOURCE: Shrewsbury Township, York County, Pennsylvania.

MOUTH: Susquehanna River, Darlington, Harford County, Maryland.

REACH CLASSIFICATION	**PENNSYLVANIA:**	CWF	
	MARYLAND:	III	
STREAM MILEAGE	**(N.Y.):**	7.2	**DRAINAGE AREA** **(N.Y.):** 26
	(Pa.):	44.5	**(Pa.):** 144
	TOTAL:	51.9	**TOTAL:** 170

WATER QUALITY DATA - Table 49 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Fecal Coliform	05/05/88	500/100 ml	200/100 ml	PA,MD
Dissolved iron	11/05/87	370 ug/l	300 ug/l	PA
"	02/04/88	350 ug/l	"	"
Total iron	02/04/88	1,850 ug/l	1,500 ug/l	PA

BIOLOGICAL DATA - Table 50

NUMBER OF TAXA: 21
ESTIMATED DENSITY: 105 individuals per square foot
DIVERSITY INDEX: 3.30

DOMINANT TAXA	ORDER	FAMILY
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Small minnow mayflies	Ephemeroptera	Baetidae
Midges	Diptera	Chironomidae

COMMENTS:

TABLE 10

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: FBDC 4.1 **STREAM:** Falling Branch Deer Creek

LOCATION: McDermott Road Bridge, Harford County, Maryland.

DER STREAM CODE: 6762 **LEVEL:** 2 23 204

LATITUDE: 39° 42' 44" **LONGITUDE:** 76° 26' 33"

SOURCE: Fawn Grove, York County, Pennsylvania.

MOUTH: Deer Creek, near Harkins, Harford County, Maryland.

REACH CLASSIFICATION	**PENNSYLVANIA:**	CWF			
	MARYLAND:	IV			
STREAM MILEAGE	**(Pa.):**	0.8	**DRAINAGE AREA**	**(Pa.):**	1.58
	(Md.):	5.6		**(Md.):**	4.94
	TOTAL:	6.4		**TOTAL:**	6.52

WATER QUALITY DATA - Table 63 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 69

NUMBER OF TAXA: 21
ESTIMATED DENSITY: 170 individuals per square foot
DIVERSITY INDEX: 3.42

DOMINANT TAXA	ORDER	FAMILY
Common netspinning caddisflies	Trichoptera	Hydropsychidae

COMMENTS:

TABLE 11

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: BBDC 4.1 **STREAM:** Big Branch Deer Creek

LOCATION: Channel Road Bridge, Harford County, Maryland.

DER STREAM CODE: 6765 **LEVEL:** 2 23 208

LATITUDE: 39° 43' 01" **LONGITUDE:** 76° 29' 30"

SOURCE: Fawn Township, York County, Pennsylvania.

MOUTH: Deer Creek, near Harkins, Harford County, Maryland.

REACH CLASSIFICATION	**PENNSYLVANIA:**	CWF			
	MARYLAND:	IV			
STREAM MILEAGE	**(Pa.):**	1.4	**DRAINAGE AREA**	**(Pa.):**	2.17
	(Md.):	4.6		**(Md.):**	6.18
	TOTAL:	6.0		**TOTAL:**	8.35

WATER QUALITY DATA - Table 63 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 70

NUMBER OF TAXA: 23
ESTIMATED DENSITY: 89 individuals per square foot
DIVERSITY INDEX: 3.52

DOMINANT TAXA	ORDER	FAMILY
Saddlecase making caddisflies	Trichoptera	Glossosomatidae
Common netspinning caddisflies	"	Hydropsychidae

COMMENTS:

TABLE 12

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: EBAU 1.5 **STREAM:** Ebaughs Creek

LOCATION: Blevins Road Bridge, Hopewell Township, York County, Maryland.

DER STREAM CODE: 6810 **LEVEL:** 2 23 272

LATITUDE: 39° 43' 29" **LONGITUDE:** 76° 35' 45"

SOURCE: Hopewell Township, York County, Pennsylvania.

MOUTH: Deer Creek, Gorsuch Mills, Baltimore County, Maryland.

REACH CLASSIFICATION	**PENNSYLVANIA:**	CWF
	MARYLAND:	III

STREAM MILEAGE	**(Pa.):**	5.6	**DRAINAGE AREA**	**(Pa.):**	6.52
	(Md.):	1.3		**(Md.):**	0.45
	TOTAL:	6.9		**TOTAL:**	6.97

WATER QUALITY DATA - Table 51 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Dissolved iron	11/05/87	380 ug/l	300 ug/l	PA
"	02/04/88	390 ug/l	"	"
Total iron	02/04/88	1,690 mg/l	1,500 mg/l	"

BIOLOGICAL DATA - Table 52

NUMBER OF TAXA: 20
ESTIMATED DENSITY: 125 individuals per square foot
DIVERSITY INDEX: 3.31

DOMINANT TAXA	ORDER	FAMILY
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Small minnow mayflies	"	Baetidae
Midges	Diptera	Chironomidae

COMMENTS:

TABLE 13

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: OCTO 6.6 **STREAM:** Octoraro Creek

LOCATION: New Bridge, Cecil County, Maryland.

DER STREAM CODE: 6947 **LEVEL:** 2 26

LATITUDE: 39° 42' 24" **LONGITUDE:** 76° 06' 57"

SOURCE: Pine Grove, Lancaster County, Pennsylvania.

MOUTH: Susquehanna River, Octoraro, Cecil County, Maryland.

REACH CLASSIFICATION	**PENNSYLVANIA:**	WWF			
	MARYLAND:	IV			
STREAM MILEAGE	**(Pa.):**	13.8	**DRAINAGE AREA**	**(Pa.):**	175
	(Md.):	8.7		**(Md.):**	48
	TOTAL:	22.5		**TOTAL:**	223

WATER QUALITY DATA - Table 53 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Dissolved ammonia	02/03/87	0.77 mg/l	0.50 mg/l	PA
Total ammonia	02/03/88	0.80 mg/l	0.50 mg/l	"
Dissolved iron	11/05/87	340 ug/l	300 ug/l	"
"	02/03/88	530 ug/l	"	"
Total iron	02/03/88	2,570 ug/l	1,500 ug/l	"

BIOLOGICAL DATA - Table 54

NUMBER OF TAXA: 17
ESTIMATED DENSITY: 808 individuals per square foot
DIVERSITY INDEX: 1.25

DOMINANT TAXA	ORDER	FAMILY
Humpless casemaking caddisflies	Trichoptera	Brachycentridae

COMMENTS: Depressed biological diversity and increased productivity are due to changes in stream quality from Octoraro Lake.

TABLE 14

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: CNWG 4.4 **STREAM:** Conowingo Creek

LOCATION: Pleasant Grove, Lancaster County, Pennsylvania.

DER STREAM CODE: 7162 **LEVEL:** 2 36

LATITUDE: 39° 43' 32" **LONGITUDE:** 76° 11' 08"

SOURCE: Truce, Lancaster County, Pennsylvania.

MOUTH: Susquehanna River, Mount Zoar, Cecil County, Maryland.

REACH CLASSIFICATION	**PENNSYLVANIA:**	CWF			
	MARYLAND:	III			
STREAM MILEAGE	**(Pa.):**	15.6	**DRAINAGE AREA**	**(Pa.):**	34.4
	(Md.):	4.0		**(Md.):**	4.7
	TOTAL:	19.6		**TOTAL:**	39.1

WATER QUALITY DATA - Table 55 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Fecal coliform	05/04/88	750/100 ml	200/100 ml	PA,MD
Dissolved iron	11/05/87	410 ug/l	300 ug/l	PA
"	02/04/88	480 ug/l	"	"

BIOLOGICAL DATA - Table 56

NUMBER OF TAXA: 20
ESTIMATED DENSITY: 56 individuals per square foot
DIVERSITY INDEX: 3.55

DOMINANT TAXA	ORDER	FAMILY
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Riffle beetles	Coleoptera	Elmidae

COMMENTS: D

TABLE 15

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SCTT 3.0 **STREAM:** Scott Creek

LOCATION: Delta, York County, Pennsylvania.

DER STREAM CODE: 7280 **LEVEL:** 2 65 25

LATITUDE: 39° 43' 24" **LONGITUDE:** 76° 20' 14"

SOURCE: Cardiff, Harford County, Maryland.

MOUTH: Muddy Creek, Bryansville Station, York County, Pennsylvania.

REACH CLASSIFICATION		**MARYLAND:** **PENNSYLVANIA:**	III TSF		
STREAM MILEAGE	**(Pa.):**	0.1	**DRAINAGE AREA**	**(Pa.):**	1.16
	(Md.):	3.1		**(Md.):**	5.28
	TOTAL:	3.2		**TOTAL:**	6.44

WATER QUALITY DATA - Table 63 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Dissolved oxygen	08/04/88	2.9 mg/l	5.0 mg/l	MD
"	"	"	4.0 mg/l	PA
Dissolved iron	"	3,710 ug/l	300 ug/l	"
Total iron	"	10,600 ug/l	1,500 ug/l	"
Dissolved manganese	"	2,380 ug/l	300 ug/l	"
Total manganese	"	2,390 ug/l	1,000 ug/l	"

BIOLOGICAL DATA

NUMBER OF TAXA: 0
ESTIMATED DENSITY: 0 individuals per square foot
DIVERSITY INDEX: 0.00

COMMENTS: Water quality parameters and absence of benthic organisms indicate very poor water quality. A strong sewage odor was present and local residents described untreated sewage discharges to the stream.

TABLE 16

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SBCC 20.4 **STREAM:** South Branch Conewago Creek

LOCATION: West Manheim Township, York County, Pennsylvania.

DER STREAM CODE: 8813 **LEVEL:** 2 161 163

LATITUDE: 39° 43' 32" **LONGITUDE:** 76° 58' 50"

SOURCE: near Wentz, Carroll County, Maryland.

MOUTH: Conewago Creek, Hamilton Township, Adams County, Pennsylvania.

REACH CLASSIFICATION		**MARYLAND:** IV **PENNSYLVANIA:** WWF			
STREAM MILEAGE	**(Md.):**	2.4	**DRAINAGE AREA**	**(Md.):**	5.2
	(Pa.):	22.7		**(Pa.):**	73.5
	TOTAL:	25.1		**TOTAL:**	78.7

WATER QUALITY DATA - Table 63 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 71

NUMBER OF TAXA: 20
ESTIMATED DENSITY: 51 individuals per square foot
DIVERSITY INDEX: 3.19

DOMINANT TAXA	ORDER	FAMILY
Riffle beetles	Coleoptera	Elmidae

COMMENTS:

TABLE 17

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: LNGA 2.5 **STREAM:** Long Arm Creek

LOCATION: West Manheim Township, York County, Pennsylvania.

DER STREAM CODE: 8912 **LEVEL:** 2 161 163 88

LATITUDE: 39° 43' 31" **LONGITUDE:** 76° 58' 55"

SOURCE: near Deep Run, Carroll County, Maryland.

MOUTH: South Branch Conewago Creek, West Manheim Township, York County, Pennsylvania.

REACH CLASSIFICATION		**MARYLAND:** IV **PENNSYLVANIA:** WWF			
STREAM MILEAGE	**(Md.):**	1.6	**DRAINAGE AREA**	**(Md.):**	2.21
	(Pa.):	3.0		**(Pa.):**	5.63
	TOTAL:	4.6		**TOTAL:**	7.84

WATER QUALITY DATA - Table 64 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 72

NUMBER OF TAXA: 23
ESTIMATED DENSITY: 72 individuals per square foot
DIVERSITY INDEX: 3.56

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Midges	Diptera	Chironomidae

COMMENTS:

TABLE 18

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: CHEM 12.0 **STREAM:** Chemung River

LOCATION: Chemung, Town of Chemung, Chemung County, New York.

DER STREAM CODE: 30851 **LEVEL:** 2 727

LATITUDE: 42° 00' 08" **LONGITUDE:** 76° 28' 06"

SOURCE: Painted Post, Steuben County, New York.

MOUTH: Susquehanna River, Tioga Point, Athens Township, Bradford County, Pennsylvania.

REACH CLASSIFICATION	**NEW YORK:**	C			
	PENNSYLVANIA:	WWF			
STREAM MILEAGE	**(N.Y.):**	39.0	**DRAINAGE AREA**	**(N.Y.):**	1740
	(Pa.):	7.0		**(Pa.):**	855
	TOTAL:	46.0		**TOTAL:**	2590

WATER QUALITY DATA - Table 57 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
pH	11/03/87	8.6	8.5	NY

BIOLOGICAL DATA - Table 58

NUMBER OF TAXA: 14
ESTIMATED DENSITY: 5 individuals per square foot
DIVERSITY INDEX: 2.72

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Perlodid stoneflies	Plecoptera	Perlodidae

COMMENTS:

TABLE 19

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: BNTY 0.9 **STREAM:** Bentley Creek

LOCATION: Wellsburg, Chemung County, New York.

DER STREAM CODE: 30878 **LEVEL:** 2 727 21

LATITUDE: 42° 00' 34" **LONGITUDE:** 76° 43' 48"

SOURCE: Big Pond, Bradford County, Pennsylvania.

MOUTH: Chemung River, Wellsburg, Chemung County, New York.

REACH CLASSIFICATION	**PENNSYLVANIA:**	WWF			
	NEW YORK:	C			
STREAM MILEAGE	**(Pa.):**	12.3	**DRAINAGE AREA**	**(Pa.):**	52.0
	(N.Y.):	1.5		**(N.Y.):**	1.4
	TOTAL:	13.8		**TOTAL:**	53.4

WATER QUALITY DATA - Table (?) **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 73

NUMBER OF TAXA: 27
ESTIMATED DENSITY: 47 individuals per square foot
DIVERSITY INDEX: 3.73

DOMINANT TAXA	ORDER	FAMILY
Little stout crawling mayflies	Ephemeroptera	Tricorythidae
Midges	Diptera	Chironomidae
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Water pennies	Coleoptera	Psephenidae

COMMENTS:

TABLE 20

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SEEL 10.3 **STREAM:** Seeley Creek

LOCATION: Town of Southport, Chemung County, New York.

DER STREAM CODE: 30921 **LEVEL:** 2 727 23

LATITUDE: 42° 00' 03" **LONGITUDE:** 76° 54' 12"

SOURCE: Wells Township, Bradford County, Pennsylvania.

MOUTH: Chemung River, Southport, Chemung County, New York.

REACH CLASSIFICATION		**PENNSYLVANIA:**	WWF		
		NEW YORK:	C		
STREAM MILEAGE	**(Pa.):**	9.6	**DRAINAGE AREA**	**(Pa.):**	54
	(N.Y.):	10.3		**(N.Y.):**	58
	TOTAL:	19.9		**TOTAL:**	144*

* includes 32 square miles in Pennsylvania portion of South Creek watershed

WATER QUALITY DATA - Table 64 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 74

NUMBER OF TAXA: 23
ESTIMATED DENSITY: 140 individuals per square foot
DIVERSITY INDEX: 2.78

DOMINANT TAXA	ORDER	FAMILY
Little stout crawling mayflies	Ephemeroptera	Tricorythidae
Midges	Diptera	Chironomidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae

COMMENTS:

TABLE 21

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SOUT 2.8 **STREAM:** South Creek

LOCATION: Fassett, Bradford County, New York.

DER STREAM CODE: 30922 **LEVEL:** 2 727 23 5

LATITUDE: 41° 59' 20" **LONGITUDE:** 76° 46' 26"

SOURCE: Snederville, Bradford County, Pennsylvania.

MOUTH: Seeley Creek, Southport, Chemung County, New York.

REACH CLASSIFICATION	**PENNSYLVANIA:**	CWF			
	NEW YORK:	C			
STREAM MILEAGE	**(Pa.):**	10.7	**DRAINAGE AREA**	**(Pa.):**	31.4
	(N.Y.):	2.8		**(N.Y.):**	13.0
	TOTAL:	13.5		**TOTAL:**	44.4

WATER QUALITY DATA - Table 64 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Total iron	07/28/88	2,880 ug/l	1,500 ug/l	PA

BIOLOGICAL DATA - Table 75

NUMBER OF TAXA: 20
ESTIMATED DENSITY: 24 individuals per square foot
DIVERSITY INDEX: 3.32

DOMINANT TAXA	ORDER	FAMILY
Riffle beetles	Coleoptera	Elmidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae

COMMENTS:

TABLE 22

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: TIOG 10.8 **STREAM:** Tioga River

LOCATION: Lindley, Steuben County, New York.

DER STREAM CODE: 30990 **LEVEL:** 2 727 35

LATITUDE: 42° 01' 44" **LONGITUDE:** 77° 07' 57"

SOURCE: Gleason, Bradford County, Pennsylvania.

MOUTH: Chemung River, Painted Post, Steuben County, New York.

REACH CLASSIFICATION	**PENNSYLVANIA:**	WWF			
	NEW YORK:	C			
STREAM MILEAGE	**(Pa.):**	48.5	**DRAINAGE AREA**	**(Pa.):**	676
	(N.Y.):	13.2		**(N.Y.):**	712
	TOTAL:	61.7		**TOTAL:**	1398

WATER QUALITY DATA - Table 59 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Dissolved iron	02/02/88	320 ug/l	300 ug/l	NY, PA
Dissolved manganese	11/02/88	530 ug/l	300 ug/l	"
" "	02/02/88	630 ug/l	"	"
" "	05/02/88	590 ug/l	"	"
Total manganese	02/02/88	1,010 ug/l	1,000 ug/l	PA

BIOLOGICAL DATA - Table 60

NUMBER OF TAXA: 19
ESTIMATED DENSITY: 41 individuals per square foot
DIVERSITY INDEX: 3.20

DOMINANT TAXA	ORDER	FAMILY
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Midges	Diptera	Chironomidae

COMMENTS:

TABLE 23

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: COWN 2.2 **STREAM:** Cowanesque River

LOCATION: Cowanesque Lake tailrace, Lawrenceville, Tioga County, Pennsylvania.

DER STREAM CODE: 30995 **LEVEL:** 2 727 35 12

LATITUDE: 41° 59' 20" **LONGITUDE:** 77° 08' 51"

SOURCE: Bingham Township, Potter County, Pennsylvania.

MOUTH: Tioga River, Town of Lindley, Steuben County, New York.

REACH CLASSIFICATION		**PENNSYLVANIA:**	WWF		
		NEW YORK:	C		
STREAM MILEAGE	**(Pa.):**	42.5	**DRAINAGE AREA**	**(Pa.):**	216
	(N.Y.):	0.9		**(N.Y.):**	84*
	TOTAL:	43.4		**TOTAL:**	300

* includes upstream areas in New York

WATER QUALITY DATA - Table 65 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 76

NUMBER OF TAXA: 18
ESTIMATED DENSITY: 101 individuals per square foot
DIVERSITY INDEX: 1.65

DOMINANT TAXA	ORDER	FAMILY
Midges	Diptera	Chironomidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae

COMMENTS: Depressed biological diversity reflects changes in water quality due to Cowanesque Lake.

TABLE 24

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: HESS 0.1 **STREAM:** Bill Hess Creek

LOCATION: Nelson, Tioga County, Pennsylvania.

DER STREAM CODE: 31022 **LEVEL:** 2 727 35 12 22

LATITUDE: 41° 58' 39" **LONGITUDE:** 77° 15' 00"

SOURCE: Town of Tuscarora, Steuben County, New York.

MOUTH: Cowanesque River, Nelson, Tioga County, Pennsylvania.

REACH CLASSIFICATION		**NEW YORK:** **PENNSYLVANIA:**	D WWF		
STREAM MILEAGE	**(N.Y.):**	2.1	**DRAINAGE AREA**	**(N.Y.):**	1.86
	(Pa.):	1.9		**(Pa.):**	0.95
	TOTAL:	4.0		**TOTAL:**	2.81

WATER QUALITY DATA - Table 65 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 77

NUMBER OF TAXA: 20
ESTIMATED DENSITY: 51 individuals per square foot
DIVERSITY INDEX: 3.39

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Midges	Diptera	Chironomidae
Little stout crawling mayflies	Ephemeroptera	Tricorythidae

COMMENTS:

TABLE 25

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: CPBK 2.0 **STREAM:** Camp Brook

LOCATION: Osceola Township, Tioga County, Pennsylvania.

DER STREAM CODE: 31025 **LEVEL:** 2 727 35 12 30

LATITUDE: 41° 59' 50" **LONGITUDE:** 77° 20' 15"

SOURCE: Town of Borden, Steuben County, New York.

MOUTH: Cowanesque River, Elkland, Tioga County, Pennsylvania.

REACH CLASSIFICATION	**NEW YORK:**	D
	PENNSYLVANIA:	WWF

STREAM MILEAGE	**(N.Y.):**	2.9	**DRAINAGE AREA**	**(N.Y.):**	7.8
	(Pa.):	3.1		**(Pa.):**	2.6
	TOTAL:	6.0		**TOTAL:**	10.4

WATER QUALITY DATA - Table 65 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
	NONE			

BIOLOGICAL DATA - Table 78

NUMBER OF TAXA: 20
ESTIMATED DENSITY: 66 individuals per square foot
DIVERSITY INDEX: 3.03

DOMINANT TAXA	ORDER	FAMILY
Midges	Diptera	Chironomidae
Water pennies	Coleoptera	Psephenidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Flatheaded mayflies	Ephemeroptera	Heptageniidae

COMMENTS:

TABLE 26

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: HLDN 3.5 **STREAM:** Holden Brook

LOCATION: Town of Woodhull, Steuben County, New York.

DER STREAM CODE: 31031 **LEVEL:** 2 727 35 12 36

LATITUDE: 42° 00' 15" **LONGITUDE:** 77° 23' 34"

SOURCE: Town of Woodhull, Steuben County, New York.

MOUTH: Cowanesque River, Osceola, Tioga County, Pennsylvania.

REACH CLASSIFICATION		**NEW YORK:**	D		
		PENNSYLVANIA:	WWF		
STREAM MILEAGE	**(N.Y.):**	3.5	**DRAINAGE AREA**	**(N.Y.):**	7.4
	(Pa.):	3.4		**(Pa.):**	5.3
	TOTAL:	6.9		**TOTAL:**	12.7

WATER QUALITY DATA - Table 65 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 79

NUMBER OF TAXA: 32
ESTIMATED DENSITY: 60 individuals per square foot
DIVERSITY INDEX: 3.41

DOMINANT TAXA	ORDER	FAMILY
Midges	Diptera	Chironomidae
Small squaregilled mayflies	Ephemeroptera	Caenidae

COMMENTS:

TABLE 27

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: TRUP 4.5 **STREAM:** Troups Creek

LOCATION: Austinburg, Tioga County, Pennsylvania.

DER STREAM CODE: 31052 **LEVEL:** 2 727 35 12 54

LATITUDE: 41° 59' 23" **LONGITUDE:** 77° 29' 31"

SOURCE: Town of Jasper, Steuben County, New York.

MOUTH: Cowanesque River, Knoxville, Tioga County, Pennsylvania.

REACH CLASSIFICATION	**NEW YORK:**	C	
	PENNSYLVANIA:	CWF	
STREAM MILEAGE	**(N.Y.):**	9.4	
	(Pa.):	5.2	
	TOTAL:	14.6	
DRAINAGE AREA	**(N.Y.):**	54.6	
	(Pa.):	13.0	
	TOTAL:	67.6	

WATER QUALITY DATA - Table 66 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 80

NUMBER OF TAXA: 25
ESTIMATED DENSITY: 71 individuals per square foot
DIVERSITY INDEX: 3.42

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeroptera	Heptageniidae

COMMENTS:

TABLE 28

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: NFCR 7.6 **STREAM:** North Fork Cowanesque River

LOCATION: Harrison Township, Potter County, Pennsylvania.

DER STREAM CODE: 31111 **LEVEL:** 2 727 35 12 82

LATITUDE: 41° 59' 48" **LONGITUDE:** 77° 37' 22"

SOURCE: Town of West Union, Steuben County, New York.

MOUTH: Cowanesque River, Harrison Valley, Tioga County, Pennsylvania.

REACH CLASSIFICATION	**NEW YORK:**	D	
	PENNSYLVANIA:	CWF	
STREAM MILEAGE	**(N.Y.):**	2.6	**DRAINAGE AREA**
	(Pa.):	8.1	
	TOTAL:	10.7	
	(N.Y.):	7.6	
	(Pa.):	14.6	
	TOTAL:	21.2	

WATER QUALITY DATA - Table 66 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table

NUMBER OF TAXA: 27
ESTIMATED DENSITY: 24 individuals per square foot
DIVERSITY INDEX: 3.69

DOMINANT TAXA	ORDER	FAMILY
Midges	Diptera	Chironomidae
Riffle beetles	Coleoptera	Elmidae

COMMENTS:

TABLE 29

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: CAYT 1.7 **STREAM:** Cayuta Creek

LOCATION: Waverly, Tioga County, New York.

DER STREAM CODE: 31589 **LEVEL:** 2 731

LATITUDE: 42° 00' 00" **LONGITUDE:** 76° 31' 24"

SOURCE: Cayuta Lake, Schuyler County, New York.

MOUTH: Susquehanna River, Sayre, Bradford County, Pennsylvania.

REACH CLASSIFICATION		**NEW YORK:** C **PENNSYLVANIA:** WWF			
STREAM MILEAGE	**(N.Y.):**	40.0	**DRAINAGE AREA**	**(N.Y.):**	139
	(Pa.):	1.7		**(Pa.):**	1
	TOTAL:	41.7		**TOTAL:**	140

WATER QUALITY DATA - Table 61 **SAMPLING FREQUENCY:** Quarterly

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Dissolved iron	11/03/87	330 ug/l	300 ug/l	NY,PA
Total iron	02/01/88	2,270 ug/l	1,500 ug/l	PA

BIOLOGICAL DATA - No data for 1988

COMMENTS:

TABLE 30

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: PARK 0.7 **STREAM:** Parks Creek

LOCATION: Litchfield Township, Bradford County, Pennsylvania.

DER STREAM CODE: 31597 **LEVEL:** 2 742

LATITUDE: 41° 59' 54" **LONGITUDE:** 76° 27' 36"

SOURCE: Litchfield Township, Bradford County, Pennsylvania.

MOUTH: Susquehanna River, Town of Nichols, Tioga County, New York.

REACH CLASSIFICATION	**PENNSYLVANIA:**	WWF
	NEW YORK:	D

STREAM MILEAGE	**(Pa.):**	2.7	**DRAINAGE AREA**	**(Pa.):**	3.86
	(N.Y.):	0.5		**(N.Y.):**	0.38
	TOTAL:	3.2		**TOTAL:**	4.24

WATER QUALITY DATA - Table 66 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 82

NUMBER OF TAXA: 16
ESTIMATED DENSITY: 24 individuals per square foot
DIVERSITY INDEX: 2.93

DOMINANT TAXA	ORDER	FAMILY
Water pennies	Coleoptera	Psephenidae
Flatheaded mayflies	Ephemeoptera	Heptageniidae

COMMENTS:

TABLE 31

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SACK 2.6 **STREAM:** Sackett Creek

LOCATION: Litchfield Township, Bradford County, Pennsylvania.

DER STREAM CODE: 31603 **LEVEL:** 2 744

LATITUDE: 41° 59' 42" **LONGITUDE:** 76° 23' 48"

SOURCE: Litchfield Township, Bradford County, Pennsylvania.

MOUTH: Susquehanna River, Town of Nichols, Tioga County, New York.

REACH CLASSIFICATION		**PENNSYLVANIA:**	WWF		
		NEW YORK:	D		
STREAM MILEAGE	**(Pa.):**	3.0	**DRAINAGE AREA**	**(Pa.):**	6.24
	(N.Y.):	2.2		**(N.Y.):**	2.88
	TOTAL:	5.2		**TOTAL:**	9.12

WATER QUALITY DATA - Table 66 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 83

NUMBER OF TAXA: 18
ESTIMATED DENSITY: 55 individuals per square foot
DIVERSITY INDEX: 2.55

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeoptera	Heptageniidae
Water pennies	Coleoptera	Psephenidae

COMMENTS:

TABLE 32

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: WAPP 2.6 **STREAM:** Wappasening Creek

LOCATION: Rt 282, Town of Nichols, Tioga County, New York.

DER STREAM CODE: 31612 **LEVEL:** 2 746

LATITUDE: 42° 00' 09" **LONGITUDE:** 76° 21' 12"

SOURCE: Lake of Meadows, Warren Township, Bradford County, Pennsylvania.

MOUTH: Susquehanna River, Nichols, Tioga County, New York.

REACH CLASSIFICATION	**PENNSYLVANIA:**	CWF			
	NEW YORK:	C			
STREAM MILEAGE	**(Pa.):**	15.0	**DRAINAGE AREA**	**(Pa.):**	57.7
	(N.Y.):	2.6		**(N.Y.):**	11.9
	TOTAL:	17.6		**TOTAL:**	69.6

WATER QUALITY DATA - Table 67 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 84

NUMBER OF TAXA: 28
ESTIMATED DENSITY: 67 individuals per square foot
DIVERSITY INDEX: 3.33

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeoptera	Heptageniidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Midges	Diptera	Chironomidae

COMMENTS:

TABLE 33

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: BRHR 0.1 **STREAM:** Briggs Hollow Run

LOCATION: Windham Township, Bradford County, Pennsylvania.

DER STREAM CODE: 31618 **LEVEL:** 2 746 3

LATITUDE: 41° 59' 46" **LONGITUDE:** 76° 20' 37"

SOURCE: Briggs Hollow, Town of Nichols, Tioga County, New York.

MOUTH: Wappasening Creek, Windham Township, Bradford County, Pennsylvania.

REACH CLASSIFICATION		**NEW YORK:** D **PENNSYLVANIA:** CWF			
STREAM MILEAGE	**(N.Y.):**	3.2	**DRAINAGE AREA**	**(N.Y.):**	4.04
	(Pa.):	0.2		**(Pa.):**	0.14
	TOTAL:	3.4		**TOTAL:**	4.18

WATER QUALITY DATA - Table 67 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 85

NUMBER OF TAXA: 13
ESTIMATED DENSITY: 9 individuals per square foot
DIVERSITY INDEX: 3.27

DOMINANT TAXA	ORDER	FAMILY
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Flatheaded mayflies	Ephemeoptera	Heptageniidae

COMMENTS:

TABLE 34

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: APAL 6.9 **STREAM:** Apalachin Creek

LOCATION: Rt 858, Little Meadows, Susquehanna County, Pennsylvania.

DER STREAM CODE: 31734 **LEVEL:** 2 748

LATITUDE: 41° 59' 41" **LONGITUDE:** 76° 07' 59"

SOURCE: Friendsville, Susquehanna County, Pennsylvania.

MOUTH: Susquehanna River, Apalachin, Tioga County, New York.

REACH CLASSIFICATION		**PENNSYLVANIA:**	WWF		
		NEW YORK:	D		
STREAM MILEAGE	**(Pa.):**	6.8	**DRAINAGE AREA**	**(Pa.):**	20.3
	(N.Y.):	6.6		**(N.Y.):**	23.6
	TOTAL:	13.4		**TOTAL:**	43.9

WATER QUALITY DATA - Table 67 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 86

NUMBER OF TAXA: 28
ESTIMATED DENSITY: 284 individuals per square foot
DIVERSITY INDEX: 3.20

DOMINANT TAXA	ORDER	FAMILY
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Fingernet caddisflies	"	Philopotamidae
Riffle beetles	Coleoptera	Elmidae

COMMENTS:

TABLE 35

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: CHOC 9.1 **STREAM:** Choconut Creek

LOCATION: Choconut Township, Susquehanna County, Pennsylvania.

DER STREAM CODE: 31765 **LEVEL:** 2 750

LATITUDE: 41° 59' 27" **LONGITUDE:** 76° 00' 04"

SOURCE: St Joseph, Susquehanna County, Pennsylvania.

MOUTH: Susquehanna River, Choconut, Broome County, New York.

REACH CLASSIFICATION	**PENNSYLVANIA:**	WWF			
	NEW YORK:	C			
STREAM MILEAGE	**(Pa.):**	6.9	**DRAINAGE AREA**	**(Pa.):**	30.5
	(N.Y.):	8.4		**(N.Y.):**	27.5
	TOTAL:	15.3		**TOTAL:**	58.0

WATER QUALITY DATA - Table 67 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 87

NUMBER OF TAXA: 20
ESTIMATED DENSITY: 79 individuals per square foot
DIVERSITY INDEX: 3.52

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Small squaregilled mayflies	Ephemeroptera	Caenidae

COMMENTS:

TABLE 36

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: LSNK 7.6 **STREAM:** Little Snake Creek

LOCATION: Silver Lake Township, Susquehanna County, Pennsylvania.

DER STREAM CODE: 31811 **LEVEL:** 2 752

LATITUDE: 41° 59' 49" **LONGITUDE:** 75° 53' 58"

SOURCE: Brackney, Susquehanna County, Pennsylvania.

MOUTH: Susquehanna River, Conklin, Broome County, New York.

REACH CLASSIFICATION		**PENNSYLVANIA:** CWF **NEW YORK:** C			
STREAM MILEAGE	**(Pa.):**	3.8	**DRAINAGE AREA**	**(Pa.):**	5.9
	(N.Y.):	7.1		**(N.Y.):**	10.6
	TOTAL:	10.9		**TOTAL:**	16.5

WATER QUALITY DATA - Table 68 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 88

NUMBER OF TAXA: 19
ESTIMATED DENSITY: 31 individuals per square foot
DIVERSITY INDEX: 3.71

DOMINANT TAXA	ORDER	FAMILY
Common netspinning caddisflies	Trichoptera	Hydropsychidae
Flatheaded mayflies	Ephemeroptera	Heptageniidae

COMMENTS:

TABLE 37

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: SNAK 2.3 **STREAM:** Snake Creek

LOCATION: Liberty Township, Susquehanna County, Pennsylvania.

DER STREAM CODE: 31820 **LEVEL:** 2 754

LATITUDE: 41° 59' 37" **LONGITUDE:** 75° 47' 43"

SOURCE: Montrose, Susquehanna County, Pennsylvania.

MOUTH: Susquehanna River, Corbettsville, Broome County, New York.

REACH CLASSIFICATION	**PENNSYLVANIA:**	CWF			
	NEW YORK:	C			
STREAM MILEAGE	**(Pa.):**	12.3	**DRAINAGE AREA**	**(Pa.):**	73.8
	(N.Y.):	1.8		**(N.Y.):**	2.9
	TOTAL:	14.1		**TOTAL:**	76.7

WATER QUALITY DATA - Table 68 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 89

NUMBER OF TAXA: 17
ESTIMATED DENSITY: 25 individuals per square foot
DIVERSITY INDEX: 2.90

DOMINANT TAXA	ORDER	FAMILY
Flatheaded mayflies	Ephemeroptera	Heptageniidae
Common netspinning caddisflies	Trichoptera	Hydropsychidae

COMMENTS:

TABLE 38

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: TROW 1.8 **STREAM:** Trowbridge Creek

LOCATION: Great Bend Township, Susquehanna County, Pennsylvania.

DER STREAM CODE: 31959 **LEVEL:** 2 757

LATITUDE: 42° 00' 00" **LONGITUDE:** 75° 43' 54"

SOURCE: West Windsor, Broome County, New York.

MOUTH: Susquehanna River, Great Bend, Susquehanna County, Pennsylvania.

REACH CLASSIFICATION		**NEW YORK:** D **PENNSYLVANIA:** CWF			
STREAM MILEAGE	**(N.Y.):**	5.2	**DRAINAGE AREA**	**(N.Y.):**	15.1
	(Pa.):	1.8		**(Pa.):**	1.6
	TOTAL:	7.0		**TOTAL:**	16.7

WATER QUALITY DATA - Table 68 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
Alkalinity	07/25/88	14.0 mg/l	20.0 mg/l	PA

BIOLOGICAL DATA - Table 90

NUMBER OF TAXA: 9
ESTIMATED DENSITY: 3 individuals per square foot
DIVERSITY INDEX: 2.72

DOMINANT TAXA	ORDER	FAMILY
Midges	Diptera	Chironomidae
Flatheaded mayflies	Ephemeroptera	Heptageniidae

COMMENTS: Macroinvertebrate community depressed due to stream channelization

TABLE 39

SUMMARY OF RESULTS, NOVEMBER 1987 TO SEPTEMBER 1988

STATION: CASC 1.6 **STREAM:** Cascade Creek

LOCATION: Town of Windsor, Broome County, New York.

DER STREAM CODE: 32313 **LEVEL:** 2 808

LATITUDE: 42° 00' 01" **LONGITUDE:** 75° 34' 45"

SOURCE: McClure, Broome County, New York.

MOUTH: Susquehanna River, Lanesboro, Susquehanna County, Pennsylvania.

REACH CLASSIFICATION	**NEW YORK:**	D			
	PENNSYLVANIA:	CWF			
STREAM MILEAGE	**(N.Y.):**	2.5	**DRAINAGE AREA**	**(N.Y.):**	10.0
	(Pa.):	1.4		**(Pa.):**	1.4
	TOTAL:	3.9		**TOTAL:**	11.4

WATER QUALITY DATA - Table 68 **SAMPLING FREQUENCY:** Annually

PARAMETERS EXCEEDING STANDARDS

PARAMETER	DATE	VALUE	STANDARD	STATE
NONE				

BIOLOGICAL DATA - Table 91

NUMBER OF TAXA: 16
ESTIMATED DENSITY: 28 individuals per square foot
DIVERSITY INDEX: 2.13

DOMINANT TAXA	ORDER	FAMILY
Midges	Diptera	Chironomidae
Flatheaded mayflies	Ephemeroptera	Heptageniidae

COMMENTS:

LITERATURE CITED

DER, 1989, Stream Directory, Division of Comprehensive Resource Planning, Bureau of Resource Planning, Department of Environmental Resources, Commonwealth of Pennsylvania, Harrisburg, Pennsylvania.

McMorran, C.P., 1988, Water Quality of Interstate Streams in the Susquehanna River Basin, Monitoring Report for 1986 and 1987 Water Years, Publication #118, Susquehanna River Basin Commission, Harrisburg, Pennsylvania.

APPENDIX A

QUARTERLY GROUP DATA

TABLE 40

SUSQ 4.8 - SUSQUEHANNA RIVER AT PORT DEPOSIT, MARYLAND

PARAMETER	UNITS	11/04/87 13:40:00 CONC.	02/04/88 07:30:00 CONC.	05/04/88 15:30:00 CONC.	08/08/88 09:50:00 CONC.
Temperature	oC	12.5	1.5	14.5	28.0
Discharge	cfs	20,200	147,000	37,500	7,230
Conductivity	umhos/cm	290	240	238	320
Dissolved Oxygen	mg/l	11.2	13.9	10.6	6.0
Biochemical Oxygen Demand	mg/l	1.2	2.0	3.6	0.8
pH	S.U.	8.00	6.80	8.10	7.80
Alkalinity	mg/l	57.0	126.0	52.0	67.0
Acidity	mg/l	2.0	4.0	2.0	4.0
Solids - Dissolved	mg/l	152	148	284	250
Total	mg/l	152	172	170	252
Organic Carbon - Total	mg/l	1.5	4.0	2.9	3.9
Fecal Coliforms	#/100 ml	20	300	20	ND
Fecal Streptococci	#/100 ml	20	4,300	20	ND
Free Chlorine	mg/l	0	0	0	ND
Ammonia as N - Dissolved	mg/l	0.05	0.33	0.04	0.06
Total	mg/l	0.07	0.34	0.04	0.09
Nitrite as N - Dissolved	mg/l	0.014	0.020	0.014	0.03
Total	mg/l	0.014	0.022	0.018	0.03
Nitrate as N - Dissolved	mg/l	0.95	2.38	0.80	1.65
Total	mg/l	0.95	2.38	0.80	1.65
K-dahl as N - Dissolved	mg/l	0.34	0.38	0.23	0.26
Total	mg/l	0.65	0.42	0.44	0.33
Phosphorus - Dissolved	mg/l	0.02K	0.10	0.03	0.03
Total	mg/l	0.05	0.24	0.08	0.06
Orthophosphate - Dissolved	mg/l	0.007	0.056	0.002	0.007
Total	mg/l	0.017	0.095	0.008	0.010
Calcium - Dissolved	mg/l	19.85	23.08	24.55	34.20
Total	mg/l	19.85	24.34	24.98	35.07
Magnesium - Dissolved	mg/l	8.60	7.22	7.35	11.44
Total	mg/l	8.71	7.85	7.58	12.19
Chloride - Dissolved	mg/l	16	17	15	19
Total	mg/l	16	17	15	19
Sulfate - Dissolved	mg/l	60	36	52	65
Total	mg/l	60	39	53	68
Iron - Dissolved	ug/l	230	390	100K	100K
Total	ug/l	740	1,510	580	230
Manganese - Dissolved	ug/l	50K	90	50K	50K
Total	ug/l	70	130	200	160
Aluminum - Dissolved	ug/l	180	170	260	150K
Total	ug/l	390	1,080	690	180

LEGEND

Underlined values exceed water quality standards. ND - No Data.
K - actual value is less than reported value.

TABLE 41

SUSQ 44.5 - SUSQUEHANNA RIVER AT COLUMBIA, PENNSYLVANIA

PARAMETER	UNITS	11/04/87 10:00:00 CONC.	02/03/88 10:20:00 CONC.	05/04/88 10:00:00 CONC.	08/08/88 14:30:00 CONC.
Temperature	oC	11.5	1.0	14.0	30.0
Discharge	cfs	21,100	69,000	36,800	15,000
Conductivity	umhos/cm	240	220	195	320
Dissolved Oxygen	mg/l	11.2	13.2	10.3	8.6
Biochemical Oxygen Demand	mg/l	0.9	2.0	0.4	2.4
pH	S.U.	8.20	7.60	7.80	8.40
Alkalinity	mg/l	54.0	120.0	44.0	70.0
Acidity	mg/l	1.0	2.0	2.0	0.0
Solids - Dissolved	mg/l	120	238	134	282
Total	mg/l	124	302	156	288
Organic Carbon - Total	mg/l	2.5	3.2	2.8	4.6
Fecal Coliforms	#/100 ml	100	2,600	50	ND
Fecal Streptococci	#/100 ml	100	9,100	200	ND
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.05	0.19	0.02	0.04
Total	mg/l	0.05	0.19	0.02	0.05
Nitrite as N - Dissolved	mg/l	0.01	0.01	0.01	0.018
Total	mg/l	0.01	0.02	0.01	0.018
Nitrate as N - Dissolved	mg/l	0.92	1.56	0.67	1.38
Total	mg/l	0.97	1.60	0.67	1.28
K-dahl as N - Dissolved	mg/l	0.54	0.32	0.44	0.31
Total	mg/l	0.84	0.40	0.44	0.50
Phosphorus - Dissolved	mg/l	0.02K	0.07	0.03	0.03
Total	mg/l	0.05	0.24	0.08	0.10
Orthophosphate - Dissolved	mg/l	0.008	0.02	0.002	0.002K
Total	mg/l	0.014	0.067	0.006	0.002
Calcium - Dissolved	mg/l	18.33	22.46	19.75	33.68
Total	mg/l	22.21	22.46	24.57	36.37
Magnesium - Dissolved	mg/l	6.59	6.37	5.31	10.56
Total	mg/l	6.59	6.45	5.66	11.18
Chloride - Dissolved	mg/l	15	16	14	20
Total	mg/l	15	16	14	20
Sulfate - Dissolved	mg/l	47	32	35	59
Total	mg/l	53	36	35	59
Iron - Dissolved	ug/l	390	450	100K	130
Total	ug/l	900	2,880	970	450
Manganese - Dissolved	ug/l	50K	60	50K	50K
Total	ug/l	60	220	200	170
Aluminum - Dissolved	ug/l	210	220	150K	150
Total	ug/l	420	2,500	880	710

LEGEND

Underlined values exceed water quality standards.
ND - No Data.
K - actual value is less than reported value.

TABLE 42

MACROINVERTEBRATE DATA FOR SUSQ 44.5

SUSQUEHANNA RIVER AT COLUMBIA, PENNSYLVANIA

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Dubiraphia *	
		Optioservus	12
		Stenelmis	14
Diptera	Chironomidae		22
	Empididae	Hemerodromia *	
	Simulidae	Simulium *	
Ephemeroptera	Baetidae	Baetis	6
		Centroptilum *	
		Pseudocloeon	5
	Caenidae	Caenis	7
	Ephemerellidae	Serratella *	
	Heptageniidae	Heptagenia	4
		Leucrocuta *	
		Stenonema	47
	Oligoneuridae	Isonychia	6
	Polymitarcidae	Ephoron *	
	Potamanthidae	Potamanthus	36
	Siphlonuridae	Ameletus *	
	Tricorythidae	Tricorythodes *	
Lepidoptera	Pyralidae	Petrophila	9
Megaloptera	Corydalidae	Nigronia *	
Odonata	Coenogrionidae	Argia	K
Trichoptera	Hydropsychidae	Cheumatopsyche	6
		Hydropsyche	12
		Macronemum	29
		Symphitopsyche	5
	Hydroptilidae	Leucotrichia *	
		Stactobiella	2
	Philopotamidae	Chimarra	14
	Polycentropoidae	Nyctiophylax *	
Amphipoda	Gammaridae	Gammarus	1
Heterodonta	Sphaeridae	Musculium *	
Tricladida	Planariidae	Dugesia *	

NUMBER OF TAXA - 1986 to 1988: 33 NUMBER OF TAXA - 1988: 19 DENSITY: 79 ipsf DIVERSITY: 3.64

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 43

SUSQ 289.1 - SUSQUEHANNA RIVER AT SAYRE, PENNSYLVANIA

PARAMETER	UNITS	11/03/87 10:15:00 CONC.	02/01/88 11:45:00 CONC.	05/02/88 11:10:00 CONC.	07/27/88 15:50:00 CONC.
Temperature	oC	8.0	2.0	11.0	26.5
Discharge	cfs	5,960	6,380	5,290	3,240
Conductivity	umhos/cm	160	240	145	243
Dissolved Oxygen	mg/l	11.9	12.6	10.8	9.1
Biochemical Oxygen Demand	mg/l	0.4	0.8	1.5	2.0
pH	S.U.	7.70	8.05	7.95	8.20
Alkalinity	mg/l	43.0	156.0	ND	78.0
Acidity	mg/l	1.0	2.0	ND	2.0
Solids - Dissolved	mg/l	104	170	112	150
Total	mg/l	108	176	140	190
Organic Carbon - Total	mg/l	4.0	2.5	3.0	3.9
Fecal Coliforms	#/100 ml	240	520	160	ND
Fecal Streptococci	#/100 ml	20	2,700	40	ND
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.08	0.16	0.04	0.02
Total	mg/l	0.09	0.17	0.04	0.02
Nitrite as N - Dissolved	mg/l	0.018	0.012	0.010	0.016
Total	mg/l	0.020	0.014	0.010	0.016
Nitrate as N - Dissolved	mg/l	0.54	1.21	0.55	0.60
Total	mg/l	0.54	1.21	0.55	0.82
K-dahl as N - Dissolved	mg/l	0.46	0.30	0.20K	0.20K
Total	mg/l	0.70	0.32	0.20K	0.30
Phosphorus - Dissolved	mg/l	0.04	0.05	0.03	0.05
Total	mg/l	0.05	0.07	0.05	0.10
Orthophosphate - Dissolved	mg/l	0.010	0.020	0.006	0.012
Total	mg/l	0.016	0.021	0.010	0.027
Calcium - Dissolved	mg/l	19.45	24.63	17.77	30.01
Total	mg/l	20.26	25.25	18.00	30.01
Magnesium - Dissolved	mg/l	3.18	4.45	3.05w	4.89
Total	mg/l	3.24	4.51	2.98	5.82
Chloride - Dissolved	mg/l	11	18	11	16
Total	mg/l	11	18	12	16
Sulfate - Dissolved	mg/l	10K	19	15	25
Total	mg/l	11	19	17	26
Iron - Dissolved	ug/l	310	100K	100K	100K
Total	ug/l	750	670	440	920
Manganese - Dissolved	ug/l	50K	50K	50K	50K
Total	ug/l	50K	50K	50K	80
Aluminum - Dissolved	ug/l	160	150K	150K	150
Total	ug/l	480	390	460	790

LEGEND
Underlined values exceed water quality standards.
K - actual value is less than reported value.
ND - No Data.

TABLE 44

MACROINVERTEBRATE DATA FOR SUSQ 289.1

SUSQUEHANNA RIVER AT SAYRE, PENNSYLVANIA

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus *	
		Stenelmis	1
	Psephenidae	Psephenus	3
Diptera	Athericidae	Atherix *	
	Chironomidae		3
	Empididae	Hemerodromia *	
	Simulidae	Simulium *	
Ephemeroptera	Baetidae	Baetis *	
		Pseudocloeon *	
	Caenidae	Caenis *	
	Ephemerellidae	Serratella *	
	Heptageniidae	Heptagenia	11
		Rhithrogena *	
		Stenocron	6
		Stenonema	7
	Leptophlebiidae	Leptophlebia	1
	Oligoneuridae	Isonychia	K
	Polymitarcidae	Ephoron	1
	Potamanthidae	Potamanthus	K
	Tricorythidae	Tricorythodes *	
Lepidoptera	Pyralidae	Petrophila *	
Odonata	Coenogrionidae	Argia	K
Plecoptera	Leuctridae	Leuctra *	
	Perlidae	Phasgonophora *	
Trichoptera	Hydropsychidae	Cheumatopsyche	K
		Hydropsyche	K
		Macronemum *	
		Symphitopsyche *	
	Hydroptilidae	Ochrotrichia *	
	Philopotamidae	Chimarra	K
Amphipoda	Gammaridae	Gammarus	K
Decapoda	Astacidae	Orconectes	K
Heterodonta	Sphaeridae		K
Pulmonata	Physidae	Physa	1

NUMBER OF TAXA - 1986 to 1988: 35 NUMBER OF TAXA - 1988: 18 DENSITY: 11 ipsf DIVERSITY: 2.65

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 45

SUSQ 340.0 - SUSQUEHANNA RIVER AT KIRKWOOD, NEW YORK

PARAMETER	UNITS	11/02/87 10:35:00 CONC.	02/02/88 12:20:00 CONC.	05/03/88 11:20:00 CONC.	07/26/88 07:45:00 CONC.
Temperature	oC	7.0	0.0	11.0	24.0
Discharge	cfs	3,910	10,100	4,780	881
Conductivity	umhos/cm	125	135	125	200
Dissolved Oxygen	mg/l	12.5	13.7	11.2	8.5
Biochemical Oxygen Demand	mg/l	0.4	0.8	0.8	1.6
pH	S.U.	7.80	7.70	7.90	8.10
Alkalinity	mg/l	24.0	88.0	ND	62.0
Acidity	mg/l	3.0	2.0	ND	5.0
Solids - Dissolved	mg/l	114	28	98	156
Total	mg/l	128	274	98	156
Total Organic Carbon	mg/l	2.8	3.2	2.6	3.9
Fecal Coliforms	#/100 ml	280	400	160	ND
Fecal Streptococci	#/100 ml	120	20,000	20	ND
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.17L	0.07	0.04	0.02
Total	mg/l	0.04	0.09	0.04	0.02
Nitrite as N - Dissolved	mg/l	0.004K	0.004	0.008	0.01
Total	mg/l	0.004K	0.010	0.008	0.01
Nitrate as N - Dissolved	mg/l	0.68	0.68	0.45	0.34
Total	mg/l	0.54	0.68	0.45	0.34
K-dahl as N - Dissolved	mg/l	0.74	0.22	0.20K	0.20K
Total	mg/l	1.26	0.22	0.20K	0.41
Phosphorus - Dissolved	mg/l	0.04	0.03	0.02	0.02
Total	mg/l	0.05	0.22	0.03	0.08
Orthophosphate - Dissolved	mg/l	0.007	0.060	0.004	0.003
Total	mg/l	0.011	0.068	0.005	0.013
Calcium - Dissolved	mg/l	14.85	15.06	15.58	28.62
Total	mg/l	14.85	15.77	16.97	28.71
Magnesium - Dissolved	mg/l	2.20	2.27	2.13	3.70
Total	mg/l	2.20	2.96	2.17	3.81
Chloride - Dissolved	mg/l	7	10	7	10
Total	mg/l	7	10	7	10
Sulfate - Dissolved	mg/l	14	12	10K	21
Total	mg/l	15	13	10K	22
Iron - Dissolved	ug/l	300	430	100K	100K
Total	ug/l	570	8,500	300	440
Manganese - Dissolved	ug/l	50K	50K	50K	50K
Total	ug/l	50K	320	50K	80
Aluminum - Dissolved	ug/l	150K	230	150K	150K
Total	ug/l	300	4,140	310	300

LEGEND
Underlined values exceed water quality standards.
K - actual value is less than reported value.
ND - No Data.
L - dissolved value greater than total value, laboratory error assumed.

TABLE 46

MACROINVERTEBRATE DATA FOR SUSQ 340.0

SUSQUEHANNA RIVER AT KIRKWOOD, NEW YORK

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Ancyronx	2
		Dubiraphia	6
		Macronychus *	
		Optioservus *	
		Stenelmis	11
	Hydrophilidae	Berosus *	
	Psephenidae	Psephenus	1
Diptera	Chironomidae		2
	Tipulidae	Tipula *	
Ephemeroptera	Baetidae	Baetis *	
	Caenidae	Caenis	4
	Ephemerellidae	Serratella *	
	Heptageniidae	Heptagenia	K
		Stenocron	K
		Stenonema	K
	Oligoneuridae	Isonychia	K
	Polymitarcidae	Ephoron	5
	Potamanthidae	Potamanthus	9
	Tricorythidae	Tricorythodes	1
Lepidoptera	Pyralidae	Petrophila *	
Megaloptera	Corydalidae	Corydalus	K
Plecoptera	Perlidae	Neoperla	K
		Phasgonophora *	
Trichoptera	Brachycentridae	Brachycentrus	23
	Helicopsychidae	Helicopsyche *	
	Hydropsychidae	Cheumatopsyche	2
		Hydropsyche	K
		Macronemum *	
		Symphitopsyche	3
	Lepidostomatidae	Lepidostoma	4
		Theliopsyche *	
	Philopotamidae	Chimarra *	
Hydracarina		*	
Amphipoda	Gammaridae	Gammarus	K
Heterodonta	Sphaeridae	Musculium	5
Gastropoda			3
Oligochaeta	Naididae	*	
Tricladida	Planariidae	Dugesia *	

NUMBER OF TAXA - 1986 to 1988: 39 NUMBER OF TAXA - 1988: 23 DENSITY: 27 ipsf DIVERSITY: 3.36

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 47

SUSQ 365.0 - SUSQUEHANNA RIVER AT WINDSOR, NEW YORK

PARAMETER	UNITS	Date 11/02/87 Time 12:10:00 CONC.	02/02/88 11:15:00 CONC.	05/03/88 10:20:00 CONC.	07/25/88 12:50:00 CONC.
Temperature	oC	8	1	11	25.5
Discharge	cfs	3,254	8,408	3,979	994
Conductivity	umhos/cm	140	145	140	187
Dissolved Oxygen	mg/l	12.7	14.0	11.0	8.8
Biochemical Oxygen Demand	mg/l	0.4	0.4	0.8	0.4K
pH	S.U.	8.00	7.60	7.90	8.00
Alkalinity	mg/l	33.0	94.0	ND	56.0
Acidity	mg/l	3.0	1.0	ND	10.0
Solids - Dissolved	mg/l	126	72	6	112
Total	mg/l	136	212	6	120
Total Organic Carbon	mg/l	3.0	3.4	2.6	4.9
Fecal Coliforms	#/100 ml	180	1,700	40	ND
Fecal Streptococci	#/100 ml	40	25,000	20	ND
Free Chlorine	mg/l	0	0	0	4
Ammonia - N - Dissolved	mg/l	0.04W	0.10	0.04	0.04
Total	mg/l	0.03	0.13	0.04	0.04
Nitrite as N - Dissolved	mg/l	0.006	0.004	0.008	0.012
Total	mg/l	0.008	0.008	0.008	0.016
Nitrate as N - Dissolved	mg/l	0.52	0.76	0.53	0.61
Total	mg/l	0.52	0.76	0.53	0.67
K-dahl as N - Dissolved	mg/l	0.46	0.20	0.39	0.36
Total	mg/l	0.68	0.42	0.39	0.36
Phosphorus - Dissolved	mg/l	0.03	0.04	0.02	0.04
Total	mg/l	0.05	0.17	0.03	0.07
Orthophosphate - Dissolved	mg/l	0.004	0.010	0.004	0.006
Total	mg/l	0.010	0.046	0.007	0.016
Calcium - Dissolved	mg/l	17.68	16.11	19.10	26.73
Total	mg/l	17.87	16.11	19.34	26.73
Magnesium - Dissolved	mg/l	2.28	2.30	2.27	3.16
Total	mg/l	2.35	2.93	2.30	3.19
Chloride - Dissolved	mg/l	7	11	9	9
Total	mg/l	7	11	9	10
Sulfate - Dissolved	mg/l	17	13	10	21
Total	mg/l	17	13	11	22
Iron - Dissolved	ug/l	350	380	100K	100K
Total	ug/l	650	5,270	250	250
Manganese - Dissolved	ug/l	50K	50K	50K	50K
Total	ug/l	50K	200	50K	50K
Aluminum - Dissolved	ug/l	150K	200	250	150K
Total	ug/l	300	3,700	250	150K

LEGEND
Underlined values exceed water quality standards.
K - actual value is less than reported value.
ND - No Data.
W - difference between dissolved and total values is within precision limits.

TABLE 48

MACROINVERTEBRATE DATA FOR SUSQ 365.0

SUSQUEHANNA RIVER AT WINDSOR, NEW YORK

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Gonielmis	1
		Macronychus *	
		Optioservus	9
		Stenelmis	2
	Gyrinidae	Dineutis *	
	Psephenidae	Psephenus	1
Diptera	Athericidae	Atherix *	
	Chironomidae		2
	Tipulidae	Antocha *	
Ephemeroptera	Baetidae	Baetis	6
		Centroptilum *	
		Pseudocloeon	7
	Caenidae	Caenis *	
	Ephemerellidae	Serratella *	
	Heptageniidae	Heptagenia	2
		Rhithrogena *	
		Stenocron *	
		Stenonema	12
	Oligoneuridae	Isonychia	3
	Polymitarcidae	Ephoron	1
	Potamanthidae	Potamanthus	3
Megaloptera	Corydalidae	Corydalus *	
	Sialidae	Sialis *	
Plecoptera	Perlidae	Acroneuria *	
		Neoperla	K
		Phasgonophora *	
	Perlodidae	Isoperla *	
Trichoptera	Hydropsychidae	Cheumatopsyche *	
		Hydropsyche	2
		Macronemum *	
		Symphitopsyche	5
	Lepidostomatidae	Theliopsyche *	
	Leptoceridae	Mystacides *	
	Limnephilidae	Frenesia *	
	Philopotamidae	Chimarra *	
	Polycentropoidae	Neureclipsis *	
		Nyctiophylax *	
Amphipoda	Gammaridae	Gammarus	1
Pulmonata	Physidae	Physa	K
Tricladida	Planariidae	Dugesia *	

NUMBER OF TAXA - 1986 to 1988: 40 NUMBER OF TAXA - 1988: 17 DENSITY: 19 ipsf DIVERSITY: 3.44

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 49

DEER 44.2 - DEER CREEK NEAR GORSUCH MILLS, MARYLAND

PARAMETER	UNITS	11/05/87 10:15:00 CONC.	02/04/88 14:20:00 CONC.	05/05/88 10:00:00 CONC.	08/03/88 12:20:00 CONC.
Temperature	oC	12.0	4.0	12.5	24.5
Discharge	cfs	9.50	35.4	17.3	8.87
Conductivity	umhos/cm	160	187	145	165
Dissolved Oxygen	mg/l	11.8	12.0	10.4	10.5
Biochemical Oxygen Demand	mg/l	0.4	1.6	1.2	0.4
pH	S.U.	8.10	7.50	7.40	8.10
Alkalinity	mg/l	32.0	74.0	28.0	38.0
Acidity	mg/l	2.0	2.0	2.0	2.0
Solids - Dissolved	mg/l	118	110	116	98
Total	mg/l	120	156	126	132
Total Organic Carbon	mg/l	1.0K	2.0	1.5	1.6
Fecal Coliforms	#/100 ml	340	700	500	ND
Fecal Streptococci	#/100 ml	220	12,000	460	ND
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.02	0.07	0.05	0.05
Total	mg/l	0.02	0.08	0.05	0.05
Nitrite as N - Dissolved	mg/l	0.004K	0.010	0.014	0.008
Total	mg/l	0.004K	0.012	0.014	0.008
Nitrate as N - Dissolved	mg/l	3.74	4.61	4.17	4.39
Total	mg/l	3.74	4.61	4.17	4.39
K-dahl as N - Dissolved	mg/l	0.16	0.20L	0.20K	0.20K
Total	mg/l	0.30	0.16	0.20K	0.20K
Phosphorus - Dissolved	mg/l	0.03	0.03	0.02	0.03
Total	mg/l	0.04	0.18	0.04	0.06
Orthophosphate - Dissolved	mg/l	0.007	0.004	0.003	0.002
Total	mg/l	0.008	0.031	0.004	0.004
Calcium - Dissolved	mg/l	14.44	14.03	13.76	14.70
Total	mg/l	14.44	15.12	14.14	14.90
Magnesium - Dissolved	mg/l	5.45	4.90	4.68	5.33
Total	mg/l	5.45	5.24	4.68	5.42
Chloride - Dissolved	mg/l	15	23	15	16
Total	mg/l	15	23	15	16
Sulfate - Dissolved	mg/l	10	10K	10K	10K
Total	mg/l	23	10K	10K	10K
Iron - Dissolved	ug/l	370	350	100K	100K
Total	ug/l	480	1,850	350	370
Manganese - Dissolved	ug/l	50K	50K	50K	50K
Total	ug/l	50K	60	50	50K
Aluminum - Dissolved	ug/l	250	150K	160	150K
Total	ug/l	290	1,570	400	250

LEGEND

ND - No Data.

Underlined values exceed water quality standards.

K - actual value is less than reported value.

TABLE 50

MACROINVERTEBRATE DATA FOR DEER 44.2

DEER CREEK NEAR GORSUCH MILLS, MARYLAND

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Macronychus *	
		Optioservus	4
		Stenelmis	3
	Gyrinidae	Dineutis *	
Diptera	Athericidae	Atherix *	
	Chironomidae		35
	Empididae	Hemerodromia	1
	Simulidae	Simulium *	
	Tipulidae	Antocha	22
Ephemeroptera	Baetidae	Baetis	K
		Centroptilum	28
		Pseudocloeon *	
	Caenidae	Caenis *	
	Ephemerellidae	Ephemerella *	
		Eurylophella *	
		Serratella	8
	Heptageniidae	Epeorus	10
		Heptagenia	3
		Ironodes *	
		Stenonema	26
	Leptophlebiidae	Paraleptophlebia *	
	Oligoneuridae	Isonychia	27
	Siphlonuridae	Parameletus *	
	Tricorythidae	Tricorythodes	2
Lepidoptera	Pyralidae	Petrophila *	
Megaloptera	Corydalidae	Corydalus	1
		Nigronia	1
Plecoptera	Perlidae	Acroneuria *	
		Paragnetina *	
		Phasgonophora	K
	Perlodidae	Isoperla	1
Trichoptera	Brachycentridae	Brachycentrus *	
	Glossomatidae	Glossosoma	1
	Hydropsychidae	Cheumatopsyche	15
		Hydropsyche	38
		Symphitopsyche	89
	Hydroptilidae	Dibusa *	
		Leucotrichia *	
		Stactobiella *	
	Philopotamidae	Chimarra *	
Hydracarina		*	
Oligochaeta	Lumbriculidae	Rhynchelmis *	

NUMBER OF TAXA - 1986 to 1988: 42 NUMBER OF TAXA - 1988: 21 DENSITY: 105 ipsf DIVERSITY INDEX: 3.30

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 51

EBAU 1.5 - EBAUGHS CREEK NEAR STEWARTSTOWN, PENNSYLVANIA

PARAMETER	UNITS	11/05/87 12:00:00 CONC.	02/04/88 13:20:00 CONC.	05/05/88 09:00:00 CONC.	08/03/88 14:05:00 CONC.
Temperature	oC	12.0	4.5	12.2	23.0
Discharge	cfs	4.50	15.6	8.32	4.11
Conductivity	umhos/cm	145	160	122	260
Dissolved Oxygen	mg/l	12.2	11.9	9.6	9.0
Biochemical Oxygen Demand	mg/l	0.4K	1.6	1.6	0.4K
pH	S.U.	7.40	7.50	7.25	7.80
Alkalinity	mg/l	23.0	56.0	22.0	44.0
Acidity	mg/l	3.0	4.0	6.0	4.0
Solids - Dissolved	mg/l	92	112	210	110
Total	mg/l	92	140	216	124
Total Organic Carbon	mg/l	1.0K	1.8	1.4	1.4
Fecal Coliforms	#/100 ml	120	1,300	80	ND
Fecal Streptococci	#/100 ml	80	2,700	440	ND
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.02	0.09	0.05	0.08
Total	mg/l	0.02	0.09	0.05	0.09
Nitrite as N - Dissolved	mg/l	0.024	0.018	0.012	0.06
Total	mg/l	0.024	0.022	0.012	0.06
Nitrate as N - Dissolved	mg/l	5.04	5.26	5.27	5.88
Total	mg/l	5.04	5.26	5.27	5.88
K-dahl as N - Dissolved	mg/l	0.26	0.20K	0.20K	0.20K
Total	mg/l	0.58	0.20K	0.20K	0.20K
Phosphorus - Dissolved	mg/l	0.06	0.03	0.02	0.03
Total	mg/l	0.07	0.16	0.04	0.06
Orthophosphate - Dissolved	mg/l	0.009	0.007	0.004	0.003
Total	mg/l	0.022	0.040	0.007	0.009
Calcium - Dissolved	mg/l	11.02	11.87	10.65	12.66
Total	mg/l	11.02	12.36	12.32	12.66
Magnesium - Dissolved	mg/l	4.81	4.56	4.27	4.92
Total	mg/l	4.81	4.52	4.79	5.10
Chloride - Dissolved	ug/l	11	13	10	12
Total	mg/l	11	13	11	12
Sulfate - Dissolved	mg/l	10	10K	10K	10K
Total	mg/l	13	10K	10K	10K
Iron - Dissolved	ug/l	380	390	100K	160
Total	ug/l	510	1,690	540	480
Manganese - Dissolved	ug/l	50K	50K	50K	50K
Total	ug/l	50K	50	60	50K
Aluminum - Total	ug/l	320	1,360	700	200
Dissolved	ug/l	250	230	220	150K

LEGEND

Underlined values exceed water quality standards.
K - actual value is less than reported value.
ND - No Data.

MACROINVERTEBRATE DATA FOR EBAU 1.5

EBAUGHS CREEK NEAR STEWARTSTOWN, PENNSYLVANIA

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	23
		Stenelmis *	
	Psephenidae	Psephenus	11
Diptera	Athericidae	Atherix *	
	Chironomidae		69
	Empididae	Hemerodromia *	
	Simulidae	Simulium *	
	Tipulidae	Antocha	10
		Tipula *	
Ephemeroptera	Baetidae	Baetis *	
		Centroptilum	26
		Pseudocloeon	44
	Caenidae	Caenis *	
	Ephemerellidae	Drunella *	
		Eurylophella *	
		Serratella	1
	Ephemeridae	Ephemera *	
	Heptageniidae	Epeorus	37
		Heptagenia	1
		Stenonema	16
	Leptophlebiidae	Leptophlebia *	
		Paraleptophlebia	K
	Oligoneuridae	Isonychia	3
	Polymitarcidae	Ephoron *	
	Potamanthidae	Potamanthus *	
	Tricorythidae	Leptohypes *	
Megaloptera	Corydalidae	Nigronia	1
Odonata	Aeshnidae	Boyeria *	
	Gomphidae	Ophiogomphus	K
Plecoptera	Leuctridae	Leuctra *	
	Perlidae	Acroneuria	1
		Phasgonophora *	
Trichoptera	Glossomatidae	Glossosoma	2
	Hydropsychidae	Cheumatopsyche	13
		Hydropsyche	44
		Symphitopsyche	73
	Hydroptilidae	Dibusa *	
		Leucotrichia *	
		Neotrichia *	
	Philopotamidae	Chimarra	K
	Polycentropodidae	Nyctiophylax *	
Decapoda	Astacidae	Cambarus *	
Tricladida	Planariidae	Dugesia *	

NUMBER OF TAXA - 1986 to 1988: 43 NUMBER OF TAXA - 1988: 20 DENSITY: 125 ipsf DIVERSITY INDEX: 3.31

K - Taxa collected only in kick screen samples + - Taxa not collected in 1988

TABLE 53

OCTO 6.6 - OCTORARO CREEK AT NEW BRIDGE, MARYLAND

PARAMETER	UNITS	11/05/87 14:30:00 CONC.	02/03/88 15:30:00 CONC.	05/04/88 13:30:00 CONC.	08/04/88 11:20:00 CONC.
Temperature	oC	12.0	2.0	14.0	28.0
Discharge	cfs	211.6	ND	136.0	52.1
Conductivity	umhos/cm	205	190	185	190
Dissolved Oxygen	mg/l	11.7	13.0	10.8	7.9
Biochemical Oxygen Demand	mg/l	2.8	2.8	1.6	2.0
pH	S.U.	8.00	7.40	7.60	7.75
Alkalinity	mg/l	44.0	94.0	36.0	44.0
Acidity	mg/l	2.0	2.0	4.0	6.0
Solids - Dissolved	mg/l	174	208	64	126
Total	mg/l	186	212	152	136
Total Organic Carbon	mg/l	4.1	6.4	2.8	4.5
Fecal Coliforms	#/100 ml	620	1,100	80	ND
Fecal Streptococci	#/100 ml	180	7,300	100	ND
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.05	0.77	0.02	0.08
Total	mg/l	0.05	0.80	0.02	0.08
Nitrite as N - Dissolved	mg/l	0.070	0.026	0.024	0.018
Total	mg/l	0.070	0.030	0.028	0.018
Nitrate as N - Dissolved	mg/l	4.33	4.81	5.26	3.50
Total	mg/l	4.33	4.81	5.37	3.50
K-dahl as N - Dissolved	mg/l	0.37	0.78	0.48	0.20K
Total	mg/l	0.54	0.88	0.52	0.39
Phosphorus - Dissolved	mg/l	0.07	0.34	0.03	0.05
Total	mg/l	0.12	0.46	0.07	0.09
Orthophosphate - Dissolved	mg/l	0.024	0.280	0.002	0.024
Total	mg/l	0.052	0.340	0.007	0.042
Calcium - Dissolved	mg/l	16.97	13.37	14.51	14.85
Total	mg/l	17.51	13.37	15.25	14.85
Magnesium - Dissolved	mg/l	8.09	7.19	7.89	8.03
Total	mg/l	8.13	7.30	8.48	8.03
Chloride - Dissolved	mg/l	13	12	13	13
Total	mg/l	13	12	13	13
Sulfate - Dissolved	mg/l	25	14	21	31
Total	mg/l	27	15	22	31
Iron - Dissolved	ug/l	340	530	100K	260
Total	ug/l	830	2,570	400	450
Manganese - Dissolved	ug/l	50K	50K	50K	50K
Total	ug/l	100	90	90	50K
Aluminum - Dissolved	ug/l	250	270	200	150K
Total	ug/l	410	2,740	530	240

LEGEND

Underlined values exceed water quality standards.
ND - No Data.
K - actual value is less than reported value.

TABLE 54

MACROINVERTEBRATE DATA FOR OCTO 6.6

OCTORARO CREEK AT NEW BRIDGE, MARYLAND

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus *	
		Stenelmis *	
	Psephenidae	Psephenus *	
Diptera	Chironomidae	.....	93
	Empididae	Hemerodromia *	
	Simulidae	Simulium	33
	Tipulidae	Antocha	12
Ephemeroptera	Baetidae	Baetis	5
		Neocloeon *	
		Pseudocloeon	41
	Ephemerellidae	Serratella	2
	Heptageniidae	Heptagenia *	
		Stenonema	25
	Oligoneuridae	Isonychia	1
	Siphlonuridae	Siphlonurus *	
	Tricorythidae	Leptohypes *	
Megaloptera	Corydalidae	Corydalus	K
Odonata	Coenogrionidae	Argia *	
Plecoptera	Perlidae	Acroneuria *	
Trichoptera	Brachycentridae	Brachycentrus	1984
		Micrasema *	
	Hydropsychidae	Cheumatopsyche	47
		Hydropsyche	32
		Macronemum *	
		Symphitopsyche	99
	Hydroptilidae	Leucotrichia	27
		Stactobiella *	
	Philopotamidae	Chimarra	19
Amphipoda	Gammaridae	Gammarus	K
Cladocera	Leptodoridae	Leptodora *	
Heterodonta	Corbiculidae	Corbicula *	
	Sphaeridae	.....	2
Oligochaeta	Naididae	*	
Tricladida	Planariidae	Dugesia *	

NUMBER OF TAXA - 1986 to 1988: 34 NUMBER OF TAXA - 1988: 17 DENSITY: 808 ipsf DIVERSITY: 1.25

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 55

CNWG 4.4 - CONOWINGO CREEK AT PLEASANT GROVE, PENNSYLVANIA

PARAMETER	UNITS	11/05/87 15:30:00 CONC.	02/04/88 09:00:00 CONC.	05/04/88 12:30:00 CONC.	08/04/88 12:35:00 CONC.
Temperature	oC	12.5	3.0	13.0	27.0
Discharge	cfs	18.0	69.0	29.1	18.3
Conductivity	umhos/cm	190	215	173	180
Dissolved Oxygen	mg/l	11.8	12.4	10.5	8.1
Biochemical Oxygen Demand	mg/l	0.8	2.0	0.8	0.8
pH	S.U.	7.60	7.30	7.30	7.40
Alkalinity	mg/l	31.0	82.0	30.0	34.0
Acidity	mg/l	ND	2.0	6.0	5.0
Solids - Dissolved	mg/l	158	158	76	144
Total	mg/l	160	166	138	160
Total Organic Carbon	mg/l	1.3	3.5	1.9	2.6
Fecal Coliforms	#/100 ml	2,600	1,100	750	ND
Fecal Streptococci	#/100 ml	220	13,000	580	ND
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.02	0.25	0.19L	0.13L
Total	mg/l	0.02	0.25	0.09	0.07
Nitrite as N - Dissolved	mg/l	0.018	0.022	0.042	0.038
Total	mg/l	0.020	0.022	0.046	0.038
Nitrate as N - Dissolved	mg/l	6.14	6.58	6.20	4.36
Total	mg/l	6.14	6.58	6.79	5.38
K-dahl as N - Dissolved	mg/l	0.35	0.46	0.57L	0.20K
Total	mg/l	0.56	0.54	0.44	0.20K
Phosphorus - Dissolved	mg/l	0.07	0.24	0.07	0.08
Total	mg/l	0.05	0.13	0.05	0.05
Orthophosphate - Dissolved	mg/l	0.031	0.11	0.027	0.044
Total	mg/l	0.012	0.097	0.008	0.003
Calcium - Dissolved	mg/l	13.86	13.75	12.91	14.67
Total	mg/l	13.99	14.59	12.91	15.29
Magnesium - Dissolved	mg/l	8.29	8.96	7.97	8.12
Total	mg/l	8.29	9.20	8.07	8.12
Chloride - Dissolved	mg/l	14	16	14	15
Total	mg/l	14	16	14	15
Sulfate - Dissolved	mg/l	17	12	16	17
Total	mg/l	17	15	16	24
Iron - Dissolved	ug/l	410	480	100K	230
Total	ug/l	870	1,110	500	580
Manganese - Dissolved	ug/l	50K	60	70	50K
Total	ug/l	50K	70	80	50K
Aluminum - Dissolved	ug/l	270	180	150K	150K
Total	ug/l	370	760	550	380

LEGEND

Underlined values exceed water quality standards.
ND - No Data.
K - actual value is less than reported value.

TABLE 56

MACROINVERTEBRATE DATA FOR CNWG 4.4

CONOWINGO CREEK NEAR PLEASANT GROVE, PENNSYLVANIA

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Macronychus *	
		Optioservus	2
		Ordobrevia *	
		Stenelmis	16
	Hydrophilidae	Berosus *	
	Psephenidae	Psephenus	1
Diptera	Athericidae	Atherix	K
	Chironomidae		7
	Empididae	Hemerodromia *	
	Tipulidae	Antocha *	
Ephemeroptera	Baetidae	Baetis	10
	Caenidae	Caenis	1
	Ephemerellidae	Serratella	2
	Heptageniidae	Heptagenia	4
		Stenocron	K
		Stenonema	38
	Leptophlebiidae	Paraleptophlebia *	
	Oligoneuridae	Isonychia	12
	Siphlonuridae	Ameletus *	
Megaloptera	Corydalidae	Corydalus	1
		Chauliodes *	
		Nigronia	5
	Sialidae	Sialis	K
Odonata	Coenogrionidae	Argia	1
Plecoptera	Leuctridae	Leuctra *	
Trichoptera	Brachycentridae	Micrasema	4
	Hydropsychidae	Cheumatopsyche	17
		Hydropsyche	16
		Symphitopsyche	23
	Hydroptilidae	Leucotrichia	1
	Philopotamidae	Chimarra	5
Decapoda	Astacidae	Orconectes	1
Isopoda	Asellidae	Asellus *	

NUMBER OF TAXA - 1986 to 1988: 30 NUMBER OF TAXA - 1988: 20 DENSITY: 56 ipsf DIVERSITY INDEX: 3.55

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 57

CHEM 12.0 - CHEMUNG RIVER AT CHEMUNG, NEW YORK

PARAMETER	UNITS	11/03/87 CONC.	02/01/88 CONC.	05/02/88 CONC.	07/28/88 CONC.
Date		11/03/87	02/01/88	05/02/88	07/28/88
Time		13:00:00	14:40:00	12:20:00	09:20:00
Temperature	oC	10.0	4.5	12.0	24.5
Discharge	cfs	945	1,980	10,900	1,460
Conductivity	umhos/cm	330	315	200	310
Dissolved Oxygen	mg/l	12.6	12.8	11.0	7.7
Biochemical Oxygen Demand	mg/l	0.8	0.8	1.5	2.0
pH	S.U.	8.60	8.00	8.20	ND
Alkalinity	mg/l	93.0	214.0	ND	ND
Acidity	mg/l	0.0	1.0	ND	ND
Solids - Dissolved	mg/l	200	176	152	210
Total	mg/l	204	196	176	264
Organic Carbon - Total	mg/l	2.1	2.7	3.2	4.1
Fecal Coliforms	#/100 ml	1,000	100	20	ND
Fecal Streptococci	#/100 ml	20	2,000	40	ND
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.11	0.10	0.02	0.08L
Total	mg/l	0.11	0.13	0.02	0.02
Nitrite as N - Dissolved	mg/l	0.026	0.012	0.008	0.022w
Total	mg/l	0.026	0.016	0.008	0.020
Nitrate as N - Dissolved	mg/l	0.39	0.93	0.37	0.94
Total	mg/l	0.39	0.98	0.37	0.96
K-dahl as N - Dissolved	mg/l	0.58	0.24	0.39	0.22
Total	mg/l	1.25	0.24	0.42	0.25
Phosphorus - Dissolved	mg/l	0.04	0.06	0.03	0.07
Total	mg/l	0.06	0.08	0.05	0.13
Orthophosphate - Dissolved	mg/l	0.014	0.024	0.010	0.014
Total	mg/l	0.019	0.035	0.012	0.062
Calcium - Dissolved	mg/l	38.47	30.99	22.71	32.90
Total	mg/l	38.48	31.72	23.28	33.55
Magnesium - Dissolved	mg/l	8.82	7.71	4.77	7.32
Total	mg/l	8.93	7.90	5.22	7.79
Chloride - Dissolved	mg/l	25	26	15	26
Total	mg/l	25	26	15	27
Sulfate - Dissolved	mg/l	46	35	31	30
Total	mg/l	46	36	32	31
Iron - Dissolved	ug/l	250	100K	100K	100K
Total	ug/l	420	1,190	450	1,440
Manganese - Dissolved	ug/l	50K	60	70	50K
Total	ug/l	50K	110	90	150
Aluminum - Dissolved	ug/l	150K	150K	150K	190
Total	ug/l	340	640	640	1,670

LEGEND

Underlined values exceed water quality standards.
ND - No Data.
K - actual value is less than reported value.
L - dissolved value greater than total value, laboratory error assumed.
W - dissolved value greater than total value but within precision limits.

TABLE 58

MACROINVERTEBRATE DATA FOR CHEM 12.0

CHEMUNG RIVER AT CHEMUNG, NEW YORK

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Stenelmis *	
	Psephenidae	Ectopria *	
		Psephenus	K
	Ptilodactylidae	Anchytarsus *	
Diptera	Chironomidae	*	
	Empididae	Hemerodromia	1
	Simulidae	Simulium *	
Ephemeroptera	Baetidae	Baetis *	
		Pseudocloeon *	
	Caenidae	Caenis	2
	Ephemerellidae	Serratella *	
	Ephemeridae	Ephemera *	
	Heptageniidae	Heptagenia *	
		Stenocron	1
		Stenonema	3
	Oligoneuridae	Isonychia *	
	Potamanthidae	Potamanthus	K
	Siphlonuridae	Parameletus *	
	Tricorythidae	Tricorythodes *	
Lepidoptera	Pyralidae	Petrophila *	
Megaloptera	Sialidae	Sialis	K
Odonata	Coenogrionidae	Argia *	
Plecoptera	Perlidae	Acroneuria *	
	Perlodidae	Isoperla	5
Trichoptera	Helicopsychidae	Helicopsyche *	
	Hydropsychidae	Cheumatopsyche	1
		Hydropsyche *	
		Symphitopsyche	2
	Polycentropoidae	Neureclipsis *	
		Nyctiophylax *	
Decapoda	Astacidae	Orconectes	K
Heterodonta	Sphaeridae	Musculium	K
Pulmonata	Physidae	Physa	K
Oligochaeta	Glossiphoniidae	Batrachobdella	1

NUMBER OF TAXA - 1986 to 1988: 34 NUMBER OF TAXA - 1988: 14 DENSITY: 5 ipsf DIVERSITY INDEX: 2.72

K - Taxa collected only in kick screen samples * - taxa not collected in 1988

TABLE 59

TIOG 10.8 - TIOGA RIVER AT LINDLEY, NEW YORK

PARAMETER	UNITS	11/02/87 15:00:00 CONC.	02/02/88 08:30:00 CONC.	05/02/88 13:50:00 CONC.	08/01/88 16:25:00 CONC.
Temperature	oC	9.5	2.0	11.5	27.5
Discharge	cfs	238	2,030	691	97
Conductivity	umhos/cm	250	230	160	245
Dissolved Oxygen	mg/l	12.6	13.6	11.3	8.1
Biochemical Oxygen Demand	mg/l	0.4	0.4	1.5	2.0
pH	S.U.	7.70	7.35	7.60	7.70
Alkalinity	mg/l	34.0	102.0	ND	40.0
Acidity	mg/l	3.0	1.0	ND	2.0
Solids - Dissolved	mg/l	166	144	126	136
Total	mg/l	178	194	140	138
Organic Carbon - Total	mg/l	2.7	2.7	2.1	3.3
Fecal Coliforms	#/100 ml	20	100	20	ND
Fecal Streptococci	#/100 ml	20	800	20	ND
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.06W	0.11	0.04	0.07
Total	mg/l	0.04	0.11	0.04	0.08
Nitrite as N - Dissolved	mg/l	0.004	0.006	0.006	0.004
Total	mg/l	0.004	0.008	0.006	0.004
Nitrate as N - Dissolved	mg/l	0.34	0.79	0.40	0.38
Total	mg/l	0.34	0.79	0.40	0.42
K-dahl as N - Dissolved	mg/l	0.44	0.22	0.39	0.38
Total	mg/l	0.72	0.25	0.44	0.43
Phosphorus - Dissolved	mg/l	0.02	0.02K	0.02	0.02K
Total	mg/l	0.02	0.08	0.03	0.04
Orthophosphate - Dissolved	mg/l	0.002	0.001	0.002	0.002K
Total	mg/l	0.005	0.012	0.002K	0.002K
Calcium - Dissolved	mg/l	25.60	19.00	19.31	26.28
Total	mg/l	26.90	20.82	19.31	27.11
Magnesium - Dissolved	mg/l	7.13	6.08	5.18	7.24
Total	mg/l	7.43	6.29	5.18	7.48
Chloride - Dissolved	mg/l	11	12	9	11
Total	mg/l	11	12	9	11
Sulfate - Dissolved	mg/l	62	52	49	61
Total	mg/l	62	52	49	64
Iron - Dissolved	ug/l	290	320	100K	100K
Total	ug/l	430	1,080	190	160
Manganese - Dissolved	ug/l	530	630	590	50K
Total	ug/l	590	1,010	620	70
Aluminum - Dissolved	ug/l	150K	170	150K	150K
Total	ug/l	150K	1,060	180	150K

LEGEND

Underlined values exceed water quality standards.
ND - No Data.
K - actual value is less than reported value.

TABLE 60

MACROINVERTEBRATE DATA FOR TIOG 10.8

TIOGA RIVER AT LINDLEY, NEW YORK

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Stenelmis *	
	Gyrinidae	Dineutis *	
	Hydrophilidae	Berosus *	
	Psephenidae	Psephenus	1
Diptera	Chironomidae		10
	Empididae	Hemerodromia *	
	Simulidae	Simulium *	
	Tipulidae	Antocha	1
		Tipula	1
Ephemeroptera	Baetidae	Baetis	5
		Heterocloeon *	
		Pseudocloeon	5
	Heptageniidae	Stenocron *	
		Stenonema	26
	Oligoneuridae	Isonychia *	
	Siphlonuridae	Ameletus *	
Megaloptera	Corydalidae	Corydalus	3
		Nigronia	1
Neuroptera	Sisyridae	Climacia	2
Odonata	Coenogrionidae	Argia *	
	Gomphidae	Ophiogomphus	1
Plecoptera	Perlidae	Acroneuria *	
		Perlesta *	
	Perlodidae	Isoperla *	
Trichoptera	Glossomatidae	Glossosoma	K
	Hydropsychidae	Cheumatopsyche	9
		Hydropsyche	4
		Symphitopsyche	31
	Hydroptilidae	Agraylea *	
		Dibusa *	
		Hydroptila	5
	Philopotamidae	Chimarra	1
	Polycentropoidae	Neureclipsis	18
		Nyctiophylax *	
Amphipoda	Gammaridae	Gammarus *	
Gastropoda			K
Oligochaeta	Naididae	*	

NUMBER OF TAXA - 1986 to 1988: 37 NUMBER OF TAXA - 1988: 19 DENSITY: 41 ipsf DIVERSITY: 3.22

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 61

CAYT 1.7 - CAYUTA CREEK AT WAVERLY, NEW YORK

PARAMETER	UNITS	11/03/87 12:00:00 CONC.	02/01/88 13:30:00 CONC.	05/03/88 08:20:00 CONC.	07/28/88 08:30:00 CONC.
Temperature	oC	9.0	0.5	10.0	21.0
Discharge	cfs	57.8	ND	ND	93.9
Conductivity	umhos/cm	240	190	160	245
Dissolved Oxygen	mg/l	13.1	13.0	11.2	8.7
Biochemical Oxygen Demand	mg/l	0.4	0.8	0.8	2.0
pH	S.U.	8.40	7.80	7.40	7.90
Alkalinity	mg/l	66.0	132.0	ND	66
Acidity	mg/l	0.0	2.0	ND	5.0
Solids - Dissolved	mg/l	132	156	140	162
Total	mg/l	138	264	140	200
Organic Carbon - Total	mg/l	1.5	2.5	2.8	4.4
Fecal Coliforms	#/100 ml	300	18,000	100	ND
Fecal Streptococci	#/100 ml	160	84,000	380	ND
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.03	0.06	0.07	ND
Total	mg/l	0.03	0.06	0.08	0.05
Nitrite as N - Dissolved	mg/l	0.004	0.004	0.006	0.012L
Total	mg/l	0.004	0.008	0.008	0.008
Nitrate as N - Dissolved	mg/l	0.48	0.44w	0.48	0.69
Total	mg/l	0.48	0.43	0.57	0.71
K-dahl as N - Dissolved	mg/l	0.54	0.20K	0.20K	0.22
Total	mg/l	0.94	0.40	0.20K	0.22
Phosphorus - Dissolved	mg/l	0.06	0.09	0.08	0.08
Total	mg/l	0.07	0.17	0.09	0.11
Orthophosphate - Dissolved	mg/l	0.034	0.062	0.050	0.032
Total	mg/l	0.034	0.070	0.064	0.056
Calcium - Dissolved	mg/l	26.25	15.80	17.97	24.45
Total	mg/l	26.25	16.73	17.97	24.92
Magnesium - Dissolved	mg/l	5.23	3.83	3.72	4.66
Total	mg/l	5.33	4.24	3.76	4.81
Chloride - Dissolved	mg/l	16	16	16	22
Total	mg/l	16	16	16	23
Sulfate - Dissolved	mg/l	13	21	21	28
Total	mg/l	15	22	22	28
Iron - Dissolved	ug/l	330	100	100K	100K
Total	ug/l	340	2,270	160	790
Manganese - Dissolved	ug/l	50K	50K	50K	50K
Total	ug/l	50K	120	50K	60
Aluminum - Dissolved	ug/l	170	160	300	70
Total	ug/l	170	2,560	440	820

LEGEND

Underlined values exceed water quality standards.
ND - No Data.
K - actual value is less than reported value.

TABLE 62

MACROINVERTEBRATE DATA FOR CAYT 1.7

CAYUTA CREEK AT WAVERLY, NEW YORK

1986 - 1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus *	
		Stenelmis *	
	Psephenidae	Psephenus	K
Diptera	Athericidae	Atherix *	
	Chironomidae	*	
	Simulidae	Simulium *	
	Tipulidae	Antocha *	
		Hexatoma	K
Ephemeroptera	Baetidae	Baetis *	
		Centroptilum *	
		Heterocloeon *	
		Pseudocloeon *	
	Caenidae	Caenis *	
	Ephemerellidae	Serratella *	
	Heptageniidae	Epeorus *	
		Heptagenia *	
		Stenocron *	
		Stenonema	K
	Oligoneuridae	Isonychia	K
	Polymitarcidae	Ephoron	K
Megaloptera	Corydalidae	Corydalus *	
	Sialidae	Sialis	K
Plecoptera	Perlidae	Acroneuria *	
		Paragnetina *	
		Phasgonophora	K
	Perlodidae	Cultus *	
Trichoptera	Brachycentridae	Brachycentrus *	
	Hydropsychidae	Cheumatopsyche *	
		Hydropsyche	K
		Symphitopsyche	K
	Hydroptilidae	Leucrotrichia *	
		Stactobiella *	
	Philopotamidae	Chimarra *	
	Polycentropodidae	Nyctiophylax *	
Decapoda	Cambaridae	Orconectes *	
Hydracarina		*	
Pulmonata	Physidae	Physa *	
Tricladida	Planariidae	Dugesia *	

NUMBER OF TAXA - 1986 to 1988: 38 NUMBER OF TAXA - 1988: 9 DENSITY: ND DIVERSITY INDEX: ND

K - Taxa collected only in kick screen samples * - taxa not collected in 1988

APPENDIX B

ANNUAL GROUP DATA

TABLE 63

WATER QUALITY DATA FOR FALLING BRANCH DEER CREEK, BIG BRANCH DEER CREEK, SCOTT CREEK AND SOUTH BRANCH CONEWAGO CREEK

Stream		Falling Branch Deer Creek	Big Branch Deer Creek	Scott Creek	South Branch Conewago Creek
Station		FBDC 4.1	BBDC 4.1	SCTT 3.0	SBCC 20.4
Date		08/03/88	08/03/88	08/04/88	08/03/88
Time		16:15	15:30	08:00	10:25
	units	Conc.	Conc.	Conc.	Conc.
Temperature	oC	26.0	22.0	22.3	22.0
Discharge	cfs	1.40	1.18	0.172	0.563
Conductivity	umhos/cm	120	105	290	105
Dissolved Oxygen	mg/l	8.3	8.7	2.9	8.4
Biochemical Oxygen Demand	mg/l	0.4K	0.4K	54	0.4K
pH	S.U.	7.4	7.85	7.30	7.5
Alkalinity	mg/l	26	28	123	50
Acidity	mg/l	8	6	46	6
Solids - Dissolved	mg/l	90	88	268	58
Total	mg/l	102	102	296	88
Total Organic Carbon	mg/l	2.2	1.1	30	1.5
Free Chlorine	mg/l	0	ND	0	ND
Ammonia as N - Dissolved	mg/l	ND	ND	ND	ND
Total	mg/l	0.02K	0.07	0.02K	0.02
Nitrite as N - Dissolved	mg/l	0.008	0.006	ND	0.004
Total	mg/l	0.008	0.006	0.012	0.004
Nitrate as N - Dissolved	mg/l	3.29	4.83	ND	1.20
Total	mg/l	3.29	4.83	0.04K	1.20
K-dahl as N - Dissolved	mg/l	0.20K	0.20K	ND	0.20
Total	mg/l	0.20K	0.20K	0.24	0.36
Phosphorus - Dissolved	mg/l	0.03	0.03	0.05	0.03
Total	mg/l	0.04	0.04	0.48	0.05
Orthophosphate - Dissolved	mg/l	0.002	0.002K	0.033	0.002
Total	mg/l	0.004	0.005	0.140	0.005
Calcium - Dissolved	mg/l	8.53	7.06	25.87Q	15.5
Total	mg/l	8.53	7.38	25.79	15.58
Magnesium - Dissolved	mg/l	3.86	4.19	12.68	3.17
Total	mg/l	3.95	4.29	12.75	3.3
Chloride - Dissolved	mg/l	11	9	29	5
Total	mg/l	11	9	30	5
Sulfate - Dissolved	mg/l	10K	10K	14	10K
Total	mg/l	10K	10K	29	10K
Iron - Dissolved	ug/l	170	100K	3,710	130
Total	ug/l	390	260	10,600	960
Manganese - Dissolved	ug/l	50K	50K	2,380	50K
Total	ug/l	50K	50K	2,390	50K
Aluminum - Dissolved	ug/l	150K	150K	150K	150K
Total	ug/l	150K	170	150K	270

LEGEND

Underlined values exceed water quality standards.
K - actual value is less than reported value.
ND - No Data.

TABLE 64

WATER DATA FOR LONG ARM CREEK, BENTLEY CREEK, SEELEY CREEK AND SOUTH CREEK

Stream		Long Arm Creek	Bentley Creek	Seeley Creek	South Creek
Station		LNGA 2.5	BNTY 0.9	SEEL 10.3	SOUT 2.8
Date		08/03/88	07/28/88	08/01/88	07/28/88
Time		09:30	11:00	11:10	12:10
	units	Conc.	Conc.	Conc.	Conc.
Temperature	oC	22.0	21.5	21.0	24.5
Discharge	cfs	0.845	10.3	4.89	3.40
Conductivity	umhos/cm	170	210	290	145
Dissolved Oxygen	mg/l	8.8	10.8	8.0	8.6
Biochemical Oxygen Demand	mg/l	0.4	1.0	0.4	2.0
pH	S.U.	7.45	ND	8.70	ND
Alkalinity	mg/l	36	ND	130	ND
Acidity	mg/l	6	ND	0	ND
Solids - Dissolved	mg/l	116	126	184	86
Total	mg/l	168	138	184	130
Total Organic Carbon	mg/l	2.0	2.3	1.7	4.8
Free Chlorine	mg/l	ND	0	ND	0
Ammonia as N - Dissolved	mg/l	0.07	0.05Q	0.04	0.05
Total	mg/l	0.07	0.02	0.04	0.07
Nitrite as N - Dissolved	mg/l	0.012	0.008Q	0.004K	0.022
Total	mg/l	0.012	0.004	0.004K	0.030
Nitrate as N - Dissolved	mg/l	5.93	0.26	0.34	0.72Q
Total	mg/l	6.15	0.26	0.34	0.69
K-dahl as N - Dissolved	mg/l	0.38	0.20K	0.20K	0.20K
Total	mg/l	0.38	0.20K	0.20K	0.25
Phosphorus - Dissolved	mg/l	0.03	0.03	0.02	0.04
Total	mg/l	0.08	0.03	0.03	0.10
Orthophosphate - Dissolved	mg/l	0.002	0.002K	0.002K	0.002
Total	mg/l	0.014	0.002K	0.003	0.032
Calcium - Dissolved	mg/l	16.59	25.85	41.03Q	14.32
Total	mg/l	17.05	25.85	40.76	14.70
Magnesium - Dissolved	mg/l	5.55	5.44	6.48	2.95
Total	mg/l	5.87	5.44	6.56	3.36
Chloride - Dissolved	mg/l	12	10	12	8
Total	mg/l	12	10	12	9
Sulfate - Dissolved	mg/l	10K	24	16	23
Total	mg/l	10	26	16	26
Iron - Dissolved	ug/l	100K	100K	100K	100K
Total	ug/l	520	100K	100K	2,880
Manganese - Dissolved	ug/l	50K	50K	50K	60
Total	ug/l	80	50K	50K	120
Aluminum - Dissolved	ug/l	150K	150K	150K	130
Total	ug/l	720	150K	150K	1630

LEGEND

ND - No Data.

Underlined values exceed water quality standards.

K - actual value is less than reported value.

TABLE 65

WATER QUALITY DATA FOR COWANESQUE RIVER, BILL HESS CREEK, CAMP BROOK AND HOLDEN CREEK

Stream		Cowanesque River	Bill Hess Creek	Camp Brook	Holden Creek
Station		COWN 2.2	HESS 0.1	CPBK 2.0	HLDN 3.5
Date		08/01/88	08/01/88	08/01/88	08/02/88
Time		17:20	14:45	13:40	08:35
	units	Conc.	Conc.	Conc.	Conc.
Temperature	oC	25.0	24.5	25.0	20.0
Discharge	cfs	21.0	0.424	0.197	0.475
Conductivity	umhos/cm	240	310	320	260
Dissolved Oxygen	mg/l	7.2	9.4	12.0	9.2
Biochemical Oxygen Demand	mg/l	2.0	0.4	0.4K	0.8
pH	S.U.	7.8	8.35	8.6	7.95
Alkalinity	mg/l	72	106	128	118
Acidity	mg/l	5	0	0	8
Solids - Dissolved	mg/l	140	196	206	158
Total	mg/l	140	196	210	180
Total Organic Carbon	mg/l	4.5	2.2	2.5	3.7
Free Chlorine	mg/l	0	ND	ND	ND
Ammonia as N - Dissolved	mg/l	ND	0.05	0.09	ND
Total	mg/l	0.07	0.05	0.09	0.03
Nitrite as N - Dissolved	mg/l	0.018	0.004K	0.004K	0.004K
Total	mg/l	0.018	0.004K	0.004K	0.004K
Nitrate as N - Dissolved	mg/l	0.22	0.08	ND	0.06
Total	mg/l	0.22	0.08	0.04	0.06
K-dahl as N - Dissolved	mg/l	0.38	0.20K	0.20	0.33
Total	mg/l	0.38	0.20K	0.20	0.38
Phosphorus - Dissolved	mg/l	0.03	0.03	0.04	0.04
Total	mg/l	0.05	0.04	0.06	0.06
Orthophosphate - Dissolved	mg/l	0.002K	0.002K	0.002K	0.004
Total	mg/l	0.002	0.004	0.018	0.014
Calcium - Dissolved	mg/l	27.32	38.90Q	40.27	36.87
Total	mg/l	28.14	38.62	41.77	37.24
Magnesium - Dissolved	mg/l	5.47	9.37W	10.17	10.09
Total	mg/l	5.47	9.36	10.30	10.11
Chloride - Dissolved	mg/l	15	10	15	8
Total	mg/l	16	11	15	8
Sulfate - Dissolved	mg/l	29	34	19	27
Total	mg/l	30	36	19	29
Iron - Dissolved	ug/l	120	100K	100K	160
Total	ug/l	240	170	100K	340
Manganese - Dissolved	ug/l	110	50K	50K	50K
Total	ug/l	210	50K	50K	50K
Aluminum - Dissolved	ug/l	150K	150K	150K	150K
Total	ug/l	150K	150K	150K	200

LEGEND

Underlined values exceed water quality standards.
ND - No Data.
K - actual value is less than reported value.

TABLE 66

WATER QUALITY DATA FOR TROUPS CREEK, NORTH FORK COWANESQUE RIVER, PARKS CREEK AND SACKETT CREEK

Stream		Troups Creek	North Fork Cowanesque River	Parks Creek	Sackett Creek
Station		TRUP 4.5	NFCR 7.6	PARK 0.7	SACK 2.6
Date		08/02/88	08/02/88	07/27/88	07/27/88
Time		10:10	11:50	14:00	12:10
	units	Conc.	Conc.	Conc.	Conc.
Temperature	oC	24.0	24.0	21.5	20.0
Discharge	cfs	2.29	0.215	3.42	3.25
Conductivity	umhos/cm	310	180	150	200
Dissolved Oxygen	mg/l	11.8	9.2	8.7	8.8
Biochemical Oxygen Demand	mg/l	0.8	2.5	0.4	0.4
pH	S.U.	8.60	7.10	ND	8.30
Alkalinity	mg/l	108	57	ND	59.0
Acidity	mg/l	0	16	ND	0.0
Solids - Dissolved	mg/l	180	114	106	142
Total	mg/l	184	114	106	158
Total Organic Carbon	mg/l	3.2	4.9	3.5	4.8
Free Chlorine	mg/l	0	ND	0	0
Ammonia as N - Dissolved	mg/l	ND	ND	0.02	0.04
Total	mg/l	0.02	0.05	0.02	0.04
Nitrite as N - Dissolved	mg/l	0.004K	0.004	0.004K	0.006
Total	mg/l	0.004K	0.004	0.004K	0.006
Nitrate as N - Dissolved	mg/l	0.04K	0.36	1.66	3.95
Total	mg/l	0.04K	0.36	1.70	3.95
K-dahl as N - Dissolved	mg/l	0.31	0.41	0.20K	0.20K
Total	mg/l	0.31	0.71	0.20K	0.20K
Phosphorus - Dissolved	mg/l	0.02	0.06	0.04	0.04
Total	mg/l	0.05	0.37	0.05	0.06
Orthophosphate - Dissolved	mg/l	0.002K	0.041	0.005	0.004
Total	mg/l	0.002K	0.054	0.017	0.020
Calcium - Dissolved	mg/l	36.20	18.72	14.65	20.39
Total	mg/l	36.86	19.55	15.04	20.64
Magnesium - Dissolved	mg/l	8.43	5.75	4.86	6.00
Total	mg/l	8.63	6.62	4.94	6.19
Chloride - Dissolved	mg/l	21	11	5	10
Total	mg/l	21	11	5	10
Sulfate - Dissolved	mg/l	27	18	24	27
Total	mg/l	28	20	25	27
Iron - Dissolved	ug/l	190	360	100K	100K
Total	ug/l	250	3,600	300	440
Manganese - Dissolved	ug/l	50K	510	50K	50K
Total	ug/l	50K	1,170	50K	50K
Aluminum - Dissolved	ug/l	150	150K	150	150K
Total	ug/l	190	3,840	300	330

Underlined values exceed water quality standards.
K - actual value is less than reported value.

LEGEND
ND - No Data.

TABLE 67

WATER QUALITY DATA FOR WAPPASENING CREEK, BRIGGS HOLLOW RUN, APALACHIN CREEK AND CHOCONUT CREEK

Stream		Wappasening Creek	Briggs Hollow Run	Apalachin Creek	Choconut Creek
Station		WAPP 2.6	BRHR 0.1	APAL 6.9	CHOC 9.1
Date		07/27/88	07/27/88	07/26/88	07/26/88
Time		09:10	10:2	14:40	12:15
	units	Conc.	Conc.	Conc.	Conc.
Temperature	oC	20.0	18.5	25.0	22.0
Discharge	cfs	33.5	4.44	0.853	1.565
Conductivity	umhos/cm	165	21	100	100
Dissolved Oxygen	mg/l	8.9	9.0	9.1	9.2
Biochemical Oxygen Demand	mg/l	0.4K	0.8	2.8	0.4
pH	S.U.	7.70	8.15	ND	ND
Alkalinity	mg/l	42.0	54.0	ND	ND
Acidity	mg/l	5.0	2.0	ND	ND
Solids - Dissolved	mg/l	128	166	106	82
Total	mg/l	128	16	106	130
Total Organic Carbon	mg/l	5.3	4.2	3.0	1.9
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.05	0.05	0.05	0.02
Total	mg/l	0.05	0.05	0.05	0.02
Nitrite as N - Dissolved	mg/l	0.018	0.006	0.004K	0.004K
Total	mg/l	0.02	0.006	0.004K	0.004K
Nitrate as N - Dissolved	mg/l	2.20	4.39	0.06	0.12
Total	mg/l	2.20	4.39	0.06	0.12
K-dahl as N - Dissolved	mg/l	0.20K	0.20K	0.20K	0.20K
Total	mg/l	0.20K	0.20K	0.36	0.20K
Phosphorus - Dissolved	mg/l	0.04	0.05	0.03	0.02
Total	mg/l	0.07	0.07	0.07	0.06
Orthophosphate - Dissolved	mg/l	0.002K	0.009	0.007	0.002
Total	mg/l	0.023	0.029	0.02	0.007
Calcium - Dissolved	mg/l	15.62	22.26	8.89	8.43
Total	mg/l	15.62	22.73	8.89	8.43
Magnesium - Dissolved	mg/l	5.11	7.09	2.75	2.77
Total	mg/l	5.16	7.31	2.75	2.78
Chloride - Dissolved	mg/l	11	11	4	8
Total	mg/l	11	11	4	8
Sulfate - Dissolved	mg/l	29	29	19	20
Total	mg/l	47	30	22	21
Iron - Dissolved	ug/l	100K	100K	180	110
Total	ug/l	460	210	730	310
Manganese - Dissolved	ug/l	50K	50K	180	50K
Total	ug/l	50K	50K	220	70
Aluminum - Dissolved	ug/l	150K	150K	150K	150K
Total	ug/l	550	270	450	350

LEGEND

Underlined values exceed water quality standards.
ND - No Data.
K - actual value is less than reported value

TABLE 68

WATER QUALITY DATA FOR LITTLE SNAKE CREEK, SNAKE CREEK TROWBRIDGE CREEK AND CASCADE CREEK

Stream		Little Snake Creek	Snake Creek	Trowbridge Creek	Cascade Creek
Station		LSNK 7.6	SNAK 2.3	TROW 1.8	CASC 1.6
Date		07/26/88	07/26/88	07/25/88	07/25/88
Time		10:55	09:15	16:15	14:30
	units	Conc.	Conc.	Conc.	Conc.
Temperature	oC	20.5	21.0	25.0	27.0
Discharge	cfs	0.469	3.41	ND	0.163
Conductivity	umhos/cm	130	100	81	90
Dissolved Oxygen	mg/l	8.9	9.3	8.4	7.8
Biochemical Oxygen Demand	mg/l	0.4	0.4	0.4K	0.4K
pH	S.U.	7.50	7.95	7.80	7.70
Alkalinity	mg/l	34.0	22.0	14.0	26.0
Acidity	mg/l	15.0	6.0	5.0	12.0
Solids - Dissolved	mg/l	106	74	36	74
Total	mg/l	114	74	36	84
Total Organic Carbon	mg/l	3.7	1.6	1.7	4.2
Free Chlorine	mg/l	0	0	0	0
Ammonia as N - Dissolved	mg/l	0.03	0.02K	0.03	0.05
Total	mg/l	0.03	0.02K	0.20	0.05
Nitrite as N - Dissolved	mg/l	0.004K	0.004K	0.004K	0.004K
Total	mg/l	0.004K	0.004K	0.004K	0.004K
Nitrate as N - Dissolved	mg/l	0.08	0.10	0.18	0.06
Total	mg/l	0.10	0.10	0.20	0.08
K-dahl as N - Dissolved	mg/l	0.20K	0.20K	0.20K	0.26
Total	mg/l	0.20K	0.20K	0.20K	0.33
Phosphorus - Dissolved	mg/l	0.03	0.02	0.02	0.03
Total	mg/l	0.06	0.04	0.03	0.07
Orthophosphate - Dissolved	mg/l	0.006	0.002K	0.002	0.010
Total	mg/l	0.012	0.003	0.006	0.017
Calcium - Dissolved	mg/l	10.88	8.48	5.99	9.50
Total	mg/l	10.88	8.62	6.17	9.62
Magnesium - Dissolved	mg/l	3.25	2.67	2.10	2.69
Total	mg/l	3.31	2.92	2.13	2.69
Chloride - Dissolved	mg/l	12	8	5	3
Total	mg/l	12	8	6	4
Sulfate - Dissolved	mg/l	21	20	14	13
Total	mg/l	22	21	14	17
Iron - Dissolved	ug/l	240	100K	100K	810
Total	ug/l	510	100	100K	1,400
Manganese - Dissolved	ug/l	50K	50K	50K	270
Total	ug/l	80	50K	50K	360
Aluminum - Dissolved	ug/l	150K	150K	150K	150K
Total	ug/l	180	150K	150K	250

LEGEND

Underlined values exceed water quality standards.
ND - No Data.
K - actual value is less than reported value.

TABLE 69

MACROINVERTEBRATE DATA FOR FBDC 4.1

FALLING BRANCH DEER CREEK NEAR FAWN GROVE, PENNSYLVANIA

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	7
		Stenelmis	1
Diptera	Chironomidae		34
	Empididae	Hemerodromia	1
	Simulidae	Simulium	17
	Tipulidae	Antocha	19
Ephemeroptera	Baetidae	Centroptilum	49
		Heterocloeon	8
		Pseudocloeon	7
	Ephemerellidae	Serratella	2
	Heptageniidae	Epeorus	18
		Stenonema	20
	Oligoneuridae	Isonychia	48
Megaloptera	Corydalidae	Nigronia	K
Plecoptera	Leuctridae	Leuctra	1
Trichoptera	Glossomatidae	Glossosoma	11
	Hydropsychidae	Cheumatopsyche	21
		Hydropsyche	123
		Symphitopsyche	102
	Philopotamidae	Chimarra	20
Oligochaeta	Naididae		2

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 21 DENSITY: 170 ipsf DIVERSITY INDEX: 3.42

K - Taxa collected only in kick screen samples

TABLE 70

MACROINVERTEBRATE DATA FOR BBDC 4.1

BIG BRANCH DEER CREEK NEAR FAWN GROVE, PENNSYLVANIA

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	12
	Psephenidae	Ectopria	1
	Ptilodactylidae	Anchytarsus	2
Diptera	Chironomidae		25
	Empididae	Hemerodromia	2
	Tipulidae	Antocha	19
Ephemeroptera	Baetidae	Cloeon	7
		Heterocloeon	2
		Pseudocloeon	9
	Ephemerellidae	Serratella	K
	Heptageniidae	Epeorus	6
		Heptagenia	11
		Stenonema	18
	Oligoneuridae	Isonychia	2
Megaloptera	Corydalidae	Nigronia	11
Odonata	Calopterygidae	Hetaerina	1
Plecoptera	Leuctridae	Leuctra	13
	Perlodidae	Isoperla	K
Trichoptera	Glossomatidae	Glossosoma	64
	Hydropsychidae	Cheumatopsyche	6
		Symphitopsyche	51
	Philopotamidae	Chimarra	3
Tricladida	Planariidae	Dugesia	1

NUMBER OF TAXA - 1986 to 1988: NA NUMBER OF TAXA - 1988: 23 DENSITY: 89 ipsf DIVERSITY INDEX: 3.52

K - Taxa collected only in kick screen samples

TABLE 71

MACROINVERTEBRATE DATA FOR SBCC 20.4

SOUTH BRANCH CONEWAGO CREEK NEAR BANDANNA, PENNSYLVANIA

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	54
		Stenelmis	K
Diptera	Chironomidae		17
	Dixidae	Dixa	1
	Tipulidae	Antocha	1
		Hexatoma	1
		Tipula	K
Ephemeroptera	Baetidae	Baetis	11
	Heptageniidae	Stenonema	11
Megaloptera	Corydalidae	Nigronia	K
Odonata	Gomphidae	Gomphus	3
		Stylogomphus	K
Plecoptera	Leuctridae	Leuctra	7
	Perlidae	Acroneuria	7
		Phasgonophora	1
Trichoptera	Glossomatidae	Glossosoma	11
	Hydropsychidae	Cheumatopsyche	3
		Hydropsyche	8
		Symphitopsyche	12
	Philopotamidae	Chimarra	5

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 20 DENSITY: 51 ipsf DIVERSITY: 3.19

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 72

MACROINVERTEBRATE DATA FOR LNGA 2.6

LONG ARM CREEK UPSTREAM LONG ARM RESERVOIR

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Macronychus	2
		Optioservus	6
		Stenelmis	10
	Psephenidae	Psephenus	12
Diptera	Chironomidae		31
	Tipulidae	Antocha	18
		Tipula	4
Ephemeroptera	Baetidae	Baetis	9
	Caenidae	Caenis	1
	Ephemerellidae	Serratella	1
	Ephemeridae	Ephemera	K
	Heptageniidae	Heptagenia	12
		Stenocron	5
		Stenonema	49
	Leptophlebiidae	Paraleptophlebia	1
	Oligoneuridae	Isonychia	1
Megaloptera	Corydalidae	Nigronia	2
	Sialidae	Sialis	1
Plecoptera	Perlidae	Phasgonophora	K
Trichoptera	Hydropsychidae	Cheumatopsyche	22
		Hydropsyche	5
		Symphitopsyche	23
Decapoda	Astacidae	Orconectes	1

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 23 DENSITY: 72 ipsf DIVERSITY: 3.56

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 73

MACROINVERTEBRATE DATA FOR BNTY 0.9

BENTLEY CREEK AT WELLSBURG, NEW YORK

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	4
		Stenelmis	2
	Hydrophilidae	Tropisternus	1
	Psephenidae	Psephenus	14
Diptera	Chironomidae		23
	Empididae	Hemerodromia	2
	Tipulidae	Hexatoma	1
		Tipula	1
Ephemeroptera	Caenidae	Caenis	8
	Heptageniidae	Stenonema	15
	Leptophlebiidae	Paraleptophlebia	3
	Oligoneuridae	Isonychia	3
	Tricorythidae	Tricorythodes	30
Megaloptera	Corydalidae	Nigronia	K
	Sialidae	Sialis	3
Odonata	Gomphidae	Gomphus	4
Plecoptera	Perlidae	Acroneuria	K
		Paragnetina	K
Trichoptera	Glossomatidae	Glossosoma	1
	Hydropsychidae	Cheumatopsyche	1
		Symphitopsyche	7
	Hydroptilidae	Stactobiella	1
	Leptoceridae	Mystacides	8
	Philopotamidae	Chimarra	1
	Polycentropoidae	Neureclipsis	1
Decapoda	Astacidae	Cambarus	1
Pulmonata	Physidae	Physa	7

NUMBER OF TAXA - 1986 to 1988: NA NUMBER OF TAXA - 1988: 27 DENSITY: 47 ipsf DIVERSITY INDEX: 3.73

K - Taxa collected only in kick screen samples

TABLE 74

MACROINVERTEBRATE DATA FOR SEEL 10.3

SEELEY CREEK NEAR SEELEY CREEK, NEW YORK

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	5
		Stenelmis	6
	Psephenidae	Psephenus	7
Diptera	Athericidae	Atherix	1
	Chironomidae		103
	Empididae	Hemerodromia *	
	Tipulidae	Antocha	19
		Hexatoma	3
		Limonia *	
		Tipula *	
Ephemeroptera	Baetidae	Centroptilum	2
		Cloeon	5
	Caenidae	Caenis	36
	Ephemerellidae	Drunella *	
		Eurylophella *	
		Serratella *	
	Ephemeridae	Ephemera *	
	Heptageniidae	Heptagenia	4
		Stenocron	2
		Stenonema	12
	Leptophlebiidae	Leptophlebia	K
		Paraleptophlebia	K
	Oligoneuridae	Isonychia	3
	Tricorythidae	Leptohyes *	
		Tricorythodes	110
Megaloptera	Corydalidae	Nigronia	K
	Sialidae	Sialis *	
Odonata	Gomphidae	Erpetogomphus *	
		Ophiogomphus	K
		Stylogomphus *	
Plecoptera	Perlidae	Phasgonophora	K
	Perlodidae	Isoperla *	
Trichoptera	Brachycentridae	Brachycentrus *	
	Glossomatidae	Glossosoma	1
	Hydropsychidae	Cheumatopsyche *	
		Hydropsyche *	
		Symphitopsyche	101
	Hydroptilidae	Leucotrichia *	
		Stactobiella	1
	Polycentropoidae	Neureclipsis *	
Pulmonata	Physidae	Physa	K
Oligochaeta	Lumbriculidae	Rhynchelmis *	
	Planorbidae	Gyraulus *	

NUMBER OF TAXA - 1986 to 1988: 42 NUMBER OF TAXA - 1988: 23 DENSITY: 140 ipsf DIVERSITY: 2.78

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988 36

TABLE 75

MACROINVERTEBRATE DATA FOR SOUT 2.8

SOUTH CREEK AT FASSETT, PENNSYLVANIA

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	4
		Stenelmis	17
	Psephenidae	Psephenus	6
Diptera	Chironomidae		7
Ephemeroptera	Caenidae	Caenis	3
	Ephemeridae	Ephemera	K
	Heptageniidae	Stenonema	2
	Leptophlebiidae	Leptophlebia	2
	Oligoneuridae	Isonychia	2
	Tricorythidae	Tricorythodes	1
Megaloptera	Corydalidae	Corydalus	K
	Sialidae	Sialis	1
Odonata	Gomphidae	Gomphus	K
Trichoptera	Brachycentridae	Brachycentrus	2
	Hydropsychidae	Cheumatopsyche	13
		Hydropsyche	8
		Symphitopsyche	K
	Philopotamidae	Chimarra	5
Decapoda	Astacidae		K
Heterodonta	Sphaeridae		K

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 20 DENSITY: 24 ipsf DIVERSITY: 3.32

K - Taxa collected only in kick screen samples

TABLE 76

MACROINVERTEBRATE DATA FOR COWN 2.2

COWANESQUE RIVER AT COWANESQUE DAM

1988

ORDER	FAMILY	GENUS	# COLLECTED
Diptera	Athericidae	Atherix	1
	Chironomidae		160
	Empididae	Hemerodromia	2
	Simulidae	Simulium	1
	Tipulidae	Antocha	6
Ephemeroptera	Baetidae	Pseudocloeon	1
	Caenidae	Caenis	3
	Heptageniidae		1
Megaloptera	Corydalidae	Corydalidae	K
Odonata	Coenogrionidae	Argia	K
Trichoptera	Brachycentridae	Brachycentrus	1
	Hydropsychidae	Cheumatopsyche	116
		Symphitopsyche	2
	Hydroptilidae	Stactobiella	1
	Polycentropoidae	Nyctiophylax	5
		Polycentropus	1
Decapoda	Astacidae	Orconectes	1
Heterodonta	Sphaeridae		2

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 18 DENSITY: 101 ipsf DIVERSITY INDEX: 1.65

K - Taxa collected only in kick screen samples

TABLE 77

MACROINVERTEBRATE DATA FOR HESS 0.1

BILL HESS CREEK AT NELSON, PENNSYLVANIA

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	5
		Stenelmis	5
	Psephenidae	Psephenus	26
Diptera	Athericidae	Atherix *	
	Chironomidae		19
	Empididae	Hemerodromia *	
	Simulidae	Simulium *	
	Tipulidae	Antocha	K
		Hexatoma	K
Ephemeroptera	Baetidae	Baetis *	
		Pseudocloeon *	
	Caenidae	Caenis	1
	Ephemerellidae	Serratella *	
	Heptageniidae	Heptagenia	2
		Rhithrogena *	
		Stenocron	2
		Stenonema	20
	Leptophlebiidae	Leptophlebia	K
		Paraleptophlebia	6
	Oligoneuridae	Isonychia	K
	Polymitarcidae	Ephoron *	
	Potamanthidae	Potamanthus *	
	Tricorythidae	Tricorythodes	19
Lepidoptera	Pyralidae	Petrophila *	
Odonata	Coenogrionidae	Argia *	
	Gomphidae	Ophiogomphus	2
Plecoptera	Leuctridae	Leuctra	1
	Perlidae	Acroneuria	K
		Phasgonophora	23
Trichoptera	Hydropsychidae	Cheumatopsyche *	
		Hydropsyche *	
		Macronemum *	
		Symphitopsyche	11
	Hydroptilidae	Ochrotrichia *	
		Stactobiella	8
Amphipoda	Gammaridae	Gammarus *	
Decapoda	Astacidae	Cambarus	3
Heterodonta	Sphaeridae	Musculium *	
Tricladida	Planariidae	Dugesia *	

NUMBER OF TAXA - 1986 to 1988: 38 NUMBER OF TAXA - 1988: 20 DENSITY: 51 ipsf DIVERSITY: 3.39

K - Taxa collected only in kick screen samples *.- Taxa not collected in 1988

TABLE 78

MACROINVERTEBRATE DATA FOR CPBK 2.0

CAMP BROOK NEAR OSCEOLA, PENNSYLVANIA

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Stenelmis	8
	Psephenidae	Psephenus	28
Diptera	Chironomidae		73
	Empididae	Hemerodromia	3
	Tipulidae	Antocha	2
		Hexatoma	2
		Tipula	1
Ephemeroptera	Baetidae	Baetis	1
		Centroptilum	3
		Heterocloeon	1
	Heptageniidae	Stenonema	25
	Leptophlebiidae	Paraleptophlebia	2
	Oligoneuridae	Isonychia	7
	Tricorythidae	Leptohypes	4
Plecoptera	Perlidae	Acroneuria	1
		Phasgonophora	8
Trichoptera	Hydropsychidae	Cheumatopsyche	2
		Symphitopsyche	25
	Hydroptilidae	Stactobiella	3
	Philopotamidae	Chimarra	K

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 20 DENSITY: 66 ipsf DIVERSITY INDEX: 3.03

K - Taxa collected only in kick screen samples

TABLE 79

MACROINVERTEBRATE DATA FOR HLDN 3.5

HOLDEN CREEK NEAR WOODHULL, NEW YORK

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	3
		Stenelmis	13
	Psephenidae	Ectopria	1
		Psephenus	23
Diptera	Chironomidae		41
	Empididae	Hemerodromia	2
	Tipulidae	Antocha	1
		Hexatoma	1
		Tipula	K
Ephemeroptera	Baetidae	Baetis	K
		Centroptilum	K
	Caenidae	Caenis	40
	Ephemeridae	Ephemera	K
	Heptageniidae	Heptagenia	K
		Stenocron	6
		Stenonema	7
	Leptophlebiidae	Leptophlebia	5
		Paraleptophlebia	2
	Oligoneuridae	Isonychia	K
	Tricorythidae	Tricorythodes	18
Megaloptera	Corydalidae	Nigronia	6
Odonata	Coenogrionidae	Argia	1
	Gomphidae	Gomphus	K
		Ophiogomphus	2
Plecoptera	Leuctridae	Leuctra	1
	Perlidae	Phasgonophora	1
Trichoptera	Hydropsychidae	Cheumatopsyche	3
		Hydropsyche	K
		Symphitopsyche	2
	Philopotamidae	Chimarra	K
Decapoda	Astacidae	Cambarus	1
Heterodonta	Sphaeridae		1

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 32 DENSITY: 60 ipsf DIVERSITY: 3.41

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 80

MACROINVERTEBRATE DATA FOR TRUP 4.5

TROUPS CREEK AT AUSTINBURG, PENNSYLVANIA

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	4
		Stenelmis	14
	Psephenidae	Psephenus	26
Diptera	Athericidae	Atherix	K
	Chironomidae		12
	Empididae	Hemerodromia	3
	Tipulidae	Hexatoma	1
		Tipula	2
Ephemeroptera	Baetidae	Baetis	9
	Caenidae	Caenis	4
		Heptagenia	16
		Stenonema	64
	Oligoneuridae	Isonychia	6
	Tricorythidae	Tricorythodes	12
Megaloptera	Corydalidae	Nigronia	K
Odonata	Coenogrionidae	Argia	K
	Gomphidae	Gomphus	1
		Ophiogomphus	10
		Stylogomphus	K
Plecoptera	Leuctridae	Leuctra	1
	Perlidae	Neoperla	4
		Phasgonophora	K
Trichoptera	Hydropsychidae	Symphitopsyche	22
	Hydroptilidae	Stactobiella	2
Pulmonata	Physidae	Physa	K

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 25 DENSITY: 71 ipsf DIVERSITY: 3.42

K - Taxa collected only in kick screen samples

TABLE 81

MACROINVERTEBRATE DATA FOR NFCR 7.1

NORTH FORK COWANESQUE RIVER NEAR NORTH FORK, PENNSYLVANIA

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	7
		Stenelmis	6
	Hydrophilidae	Laccobius	2
	Psephenidae	Psephenus	1
Diptera	Athericidae	Atherix	3
	Chironomidae		17
	Tabanidae	Chrysops	K
	Tipulidae	Hexatoma	K
		Tipula	K
Ephemeroptera	Baetidae	Baetis	4
	Caenidae	Caenis	9
	Ephemeridae	Ephemera	1
	Heptageniidae	Heptagenia	2
		Stenocron	1
		Stenonema	3
	Leptophlebiidae	Paraleptophlebia	2
	Oligoneuridae	Isonychia	K
	Tricorythidae	Tricorythodes	7
Odonata	Gomphidae	Gomphus	K
		Ophiogomphus	1
Plecoptera	Leuctridae	Leuctra	1
Trichoptera	Glossomatidae	Glossosoma	1
	Hydropsychidae	Cheumatopsyche	1
		Hydropsyche	1
		Symphitopsyche	2
	Philopotamidae	Chimarra	K
Decapoda	Astacidae		K

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 27 DENSITY: 24 ipsf DIVERSITY: 3.69

K - Taxa collected only in kick screen samples

TABLE 82

MACROINVERTEBRATE DATA FOR PARK 0.7

PARKS CREEK NEAR LITCHFIELD, PENNSYLVANIA

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Stenelmis	2
	Psephenidae	Psephenus	28
Diptera	Tipulidae	Hexatoma	1
Ephemeroptera	Baetidae	Baetis	2
	Heptageniidae	Heptagenia	1
		Stenocron	13
		Stenonema	2
	Leptophlebiidae	Paraleptophlebia	9
Megaloptera	Corydalidae	Nigronia	3
Plecoptera	Perlidae	Acroneuria	K
		Neoperla	1
Trichoptera	Hydropsychidae	Cheumatopsyche	2
		Hydropsyche	2
		Symphitopsyche	3
	Limnophilidae	Pycnopsyche	1
	Philopotamidae	Dolophilodes	2

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 16 DENSITY: 24 ipsf DIVERSITY: 2.93

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 83

MACROINVERTEBRATE DATA FOR SACK 2.6

SACKETT CREEK NEAR LITCHFIELD, PENNSYLVANIA

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	1
	Psephenidae	Psephenus	56
Diptera	Chironomidae		6
	Tipulidae	Tipula	K
Ephemeroptera	Baetidae	Baetis	3
	Heptageniidae	Heptagenia	7
		Stenocron	53
		Stenonema	17
	Leptophlebiidae	Leptophlebia	3
		Paraleptophlebia	6
Megaloptera	Corydalidae	Chauliodes	K
		Nigronia	1
Odonata	Gomphidae	Ophiogomphus	K
Plecoptera	Perlidae	Acroneuria	K
Trichoptera	Hydropsychidae	Cheumatopsyche	10
		Hydropsyche	2
		Symphitopsyche	K
	Philopotamidae	Chimarra	K
Decapoda	Astacidae		K

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 18 DENSITY: 55 ipsf DIVERSITY: 2.55

K - Taxa collected only in kick screen samples

TABLE 84

MACROINVERTEBRATE DATA FOR WAPP 2.6

WAPPASENING CREEK NEAR NICHOLS, NEW YORK

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	10
		Stenelmis	10
	Psephenidae	Psephenus	3
Diptera	Athericidae	Atherix	1
	Chironomidae		28
	Empididae	Hemerodromia	1
	Tipulidae	Antocha	K
		Hexatoma	1
		Tipula	K
Ephemeroptera	Baetidae	Baetis	1
	Caenidae	Caenis	24
	Heptageniidae	Heptagenia	11
		Stenocron	K
		Stenonema	54
	Leptophlebiidae	Leptophlebia	K
	Oligoneuridae	Isonychia	7
	Tricorythidae	Tricorythodes	3
Megaloptera	Corydalidae	Nigronia	K
	Sialidae	Sialis	K
Odonata	Coenogrionidae	Argia	K
	Gomphidae	Ophiogomphus	K
Trichoptera	Glossomatidae	Glossosoma	2
	Hydropsychidae	Cheumatopsyche	8
		Hydropsyche	4
		Symphitopsyche	30
	Hydroptilidae	Stactobiella	2
	Philopotamidae	Chimarra	2
Pulmonata	Physidae	Physa	K

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 28 DENSITY: 67 ipsf DIVERSITY: 3.33

K - Taxa collected only in kick screen samples

TABLE 85

MACROINVERTEBRATE DATA FOR BRHR 0.1

BRIGGS HOLLOW RUN NEAR WINDHAM, PENNSYLVANIA

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Psephenidae	Psephenus	2
Diptera	Chironomidae		3
	Tipulidae	Tipula	3
Ephemeroptera	Baetidae	Centroptilum	1
	Caenidae	Caenis	1
	Heptageniidae	Stenocron	K
		Stenonema	4
	Oligoneuridae	Isonychia	1
Trichoptera	Hydropsychidae	Cheumatopsyche	1
		Hydropsyche	6
		Symphitopsyche	2
Decapoda	Astacidae		1
Pulmonata	Physidae	Physa	1

NUMBER OF TAXA - 1986 to 1988: NA NUMBER OF TAXA - 1988: 13 DENSITY: 9 ipsf DIVERSITY INDEX: 3.27

K - Taxa collected only in kick screen samples

TABLE 86

MACROINVERTEBRATE DATA FOR APAL 6.9

APALACHIN CREEK AT LITTLE MEADOWS, PENNSYLVANIA

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Ordobrevia	3
		Optioservus	35
		Stenelmis	74
	Psephenidae	Psephenus	18
Diptera	Chironomidae		29
	Simulidae	Simulium	1
	Tipulidae	Hexatoma	4
		Tipula	K
Ephemeroptera	Baetidae	Centroptilum	2
	Caenidae	Caenis	45
	Ephemerellidae	Serratella	7
	Heptageniidae	Stenocron	K
		Stenonema	52
	Leptophlebiidae		1
	Oligoneuridae	Isonychia	9
Megaloptera	Corydalidae	Nigronia	3
	Sialidae	Sialis	K
Odonata	Gomphidae	Gomphus	K
		Ophiogomphus	2
Plecoptera	Perlidae	Acroneuria	K
	Perlodidae	Isoperla	1
Trichoptera	Glossomatidae	Glossosoma	4
	Hydropsychidae	Cheumatopsyche	230
		Hydropsyche	73
		Symphitopsyche	8
	Philopotamidae	Chimarra	201
Decapoda	Astacidae	Orconectes	1
Heterodonta	Sphaeridae		50

NUMBER OF TAXA - 1986 to 1988: NA NUMBER OF TAXA - 1988: 28 DENSITY: 284 ipsf DIVERSITY INDEX: 3.20

K - Taxa collected only in kick screen samples

TABLE 87

MACROINVERTEBRATE DATA FOR CHOC 9.1

CHOCONUT CREEK NEAR VESTAL, NEW YORK

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Optioservus	9
		Stenelmis	11
	Psephenidae	Psephenus	3
Diptera	Chironomidae		15
	Empididae	Hemerodromia	1
	Tipulidae	Antocha	1
		Tipula	2
Ephemeroptera	Caenidae	Caenis	34
	Ephemerellidae	Ephemerella	1
		Serratella	13
	Heptageniidae	Epeorus	1
		Heptagenia	20
		Stenonema	38
	Oligoneuridae	Isonychia	23
Megaloptera	Corydalidae	Nigronia	K
Odonata	Gomphidae	Gomphus	1
Plecoptera	Perlodidae	Isoperla	3
Trichoptera	Hydropsychidae	Cheumatopsyche	10
		Symphitopsyche	41
	Philopotamidae	Chimarra	9

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 20 DENSITY: 79 ipsf DIVERSITY INDEX: 3.52

K - Taxa collected only in kick screen samples

TABLE 88

MACROINVERTEBRATE DATA FOR LSNK 7.6

LITTLE SNAKE CREEK NEAR BRACKNEY, PENNSYLVANIA

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Stenelmis	7
	Psephenidae	Psephenus	5
Diptera	Athericidae	Atherix	2
	Chironomidae		8
	Empididae	Hemerodromia	1
	Tipulidae	Hexatoma	2
Ephemeroptera	Baetidae	Neocloeon	1
	Caenidae	Caenis	4
	Ephemeridae	Ephemera	2
	Heptageniidae	Heptagenia	3
		Stenonema	10
	Oligoneuridae	Isonychia	7
Megaloptera	Corydalidae	Nigronia	3
Plecoptera	Perlidae	Acroneuria	9
		Paragnetina	K
Trichoptera	Hydropsychidae	Cheumatopsyche	1
		Hydropsyche	16
		Symphitopsyche	12
	Philopotamidae	Chimarra	1

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 19 DENSITY: 31 ipsf DIVERSITY: 3.71

K - Taxa collected only in kick screen samples

TABLE 89

MACROINVERTEBRATE DATA FOR SNAK 2.3

SNAKE CREEK NEAR BROOKDALE, PENNSYLVANIA

1986-1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Macronychus *	
		Optioservus *	
		Stenelmis	K
	Psephenidae	Psephenus *	
Diptera	Athericidae	Atherix *	
	Chironomidae		6
	Tipulidae	Antocha *	
		Tipula *	
Ephemeroptera	Baetidae	Baetis	K
		Centroptilum *	
		Heterocloeon *	
		Neocloeon	1
	Caenidae	Caenis *	
	Ephemerellidae	Ephemerella	3
		Serratella	1
	Heptageniidae	Epeorus *	
		Heptagenia	11
		Stenocron	2
		Stenonema	20
	Leptophlebiidae	Paraleptophlebia	K
	Oligoneuridae	Isonychia	7
Megaloptera	Corydalidae	Corydalus *	
		Chauliodes	K
		Nigronia *	
	Sialidae	Sialis *	
Odonata	Gomphidae	Ophiogomphus *	
Plecoptera	Leuctridae	Leuctra *	
	Perlidae	Acroneuria *	
		Phasgonophora	K
Trichoptera	Hydropsychidae	Cheumatopsyche	2
		Hydropsyche	3
		Parapsyche *	
		Symphitopsyche	19
	Hydroptilidae	Leucotrichia *	
	Philopotamidae	Chimarra	1
	Polycentropoidae	Neureclipsis *	
Heterodonta	Sphaeridae	Psidium *	

NUMBER OF TAXA - 1986 to 1988: 37 NUMBER OF TAXA - 1988: 17 DENSITY: 25 ipsf DIVERSITY: 2.90

K - Taxa collected only in kick screen samples * - Taxa not collected in 1988

TABLE 90

MACROINVERTEBRATE DATA FOR TROW 1.8

TROWBRIDGE CREEK NEAR GREAT BEND, PENNSYLVANIA

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Stenelmis	1
	Psephenidae	Psephenus	K
Diptera	Chironomidae		2
	Simulidae	Simulium	K
Ephemeroptera	Baetidae	Baetis	1
	Heptageniidae	Heptagenia	1
		Stenocron	1
		Stenonema	2
Trichoptera	Hydropsychidae	Symphitopsyche	1

NUMBER OF TAXA - 1986 to 1988: ND NUMBER OF TAXA - 1988: 9 DENSITY: 3 ipsf DIVERSITY: 2.72

K - Taxa collected only in kick screen samples

TABLE 91

MACROINVERTEBRATE DATA FOR CASC 1.6

CASCADE CREEK NEAR LANESBORO, PENNSYLVANIA

1988

ORDER	FAMILY	GENUS	# COLLECTED
Coleoptera	Elmidae	Stenelmis	1
	Psephenidae	Psephenus	1
Diptera	Chironomidae		52
Ephemeroptera	Baetidae	Pseudocloeon	1
	Caenidae	Caenis	7
	Ephemeridae	Ephemera	2
	Heptageniidae	Stenocron	1
		Stenonema	8
	Leptophlebiidae		1
	Tricorythidae	Leptohypes	1
Megaloptera	Corydalidae	Nigronia	1
	Sialidae	Sialis	4
Odonata	Calopterygidae	Hetaerina	K
	Gomphidae	Hagenius	2
Plecoptera	Perlidae	Phasgonophora	1
Decapoda	Astacidae		K

NUMBER OF TAXA - 1986 to 1988: NA NUMBER OF TAXA - 1988: 16 DENSITY: 28 ipsf DIVERSITY INDEX: 2.13

K - Taxa collected only in kick screen samples

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